



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

See Exhibit A for detailed guidance on preparing this attachment. There is no page limitation for Attachment 3; however, applicants are encouraged to be clear and concise. See Exhibit A for an outline of tasks that will also meet the major tasks listed in the Budget in Exhibit B.

The Work Plan contains summary descriptions of all the projects constituting the Proposal and tasks necessary to complete each project in the Proposal. The Work Plan must be sufficiently detailed to demonstrate that the Proposal is ready for implementation, and should include a brief discussion of the supporting studies, data, and resources for each project, to ensure implementation of the proposal is based on sound scientific and technical principles. Deliverables should be identified in the Work Plan. For this solicitation, the scoring criteria for grant applications will include points for applications where the Work Plan includes Data Management and Monitoring Deliverables that are consistent with the IRWM Plan Standards and Guidance - Data Management Standard, contained in the IRWM Guidelines. The Work Plan should identify linkages between and among projects that are critical to the success of the regional effort. The Work Plan tasks must also be consistent with the major tasks and sub-tasks identified in the Budget, Attachment 4 and Schedule, Attachment 5.

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# I. Introduction and Overview

*The introduction should provide information about the Proposal and shall include, but not be limited to the following items:*

**Goals and Objectives:** A presentation of the Goals and Objectives of the Proposal.

**Purpose and Need:** A description of the purpose and need of the Proposal and how it addresses the adopted IRWM Plan's goals and objectives.

**Project List:** A table of specific projects in the Proposal, including, an abstract of each project, the current status of each project in terms of percent completion of design, and implementing agencies.

**Integrated Elements of Projects:** A description of synergies or linkages between projects that result in added value, or require coordinated implementation or operation.

**Regional Map:** Detailed maps that show, at a minimum, the location of activities or facilities of the project(s), the water resources (groundwater or surface water) that will be affected; DACs within the region; and proposed monitoring locations.

**Completed Work:** A description of the work that has been completed or is expected to be completed prior to the grant award date. For example, if CEQA/NEPA and other environmental compliance efforts have been completed discuss the environmental determination made by the lead agency and the documents that were filed

**Existing Data and Studies:** A brief discussion of the data that have been collected and studies that have been performed that support the project(s)' site location, feasibility, and technical methods. If necessary, include references to the page locations of the studies or reports that support the claims made in this discussion.

**Project Map:** Provide a site map showing the project(s) geographical location and the surrounding work boundaries.

**Project Timing and Phasing:** If the proposed project(s) is part of a multi-phased project complex, provide a description that demonstrates that the proposal can operate on a standalone basis, i.e., can be fully functional without implementation of the subsequent projects.

*Where requested funding is for a component of a larger project, this section must describe all of the components of the larger project complex and identify project elements the IRWM Implementation grant is proposed to fund. Linkages to any other projects that must be completed first or that are essential to obtain the full benefits of the Proposal must be discussed.*

## Goals and Objectives of the Proposal

The purpose of this Proposal for an Implementation Grant from the Proposition 84 Integrated Regional Water Management (IRWM) Program is to implement projects identified in the Watersheds Coalition of Ventura County (WCVC) Integrated Regional Water Management Plan (IRWM Plan).

The objectives of the WCVC IRWM Plan, as adopted, are to:

1. Reduce dependence on imported water.
2. Protect, conserve, and augment water supplies.
3. Protect and improve water quality.
4. Protect people, property, and the environment from adverse flooding impacts.

5. Protect and restore habitat and ecosystems in our watersheds.
6. Provide water-related public access, recreational, and educational opportunities.

The goal of this Proposal is to implement projects that fulfill the above objectives.

## Purpose and Need

The purpose and need for the projects in this Proposal center around water supply, water quality, and flood control. Detailed discussion of purpose and need for each project in the Proposal can be found in the individual work plans in Section II. Work Items.

## Water Supply

Two of the WCVC IRWM Plan objectives address water supply:

1. Reduce dependence on imported water.

2. Protect, conserve, and augment water supplies.

Of the total Ventura County water demand of approximately 430,500 acre feet-year (AFY), about 279,800 AFY is supplied from local groundwater sources. In recent years, imported water, which is exclusively State Water Project (SWP) water from the Delta (Ventura County receives no Colorado River water), amounted to about 25 percent of the water utilized in the County. The balance of the water is from local surface water and recycled water.

The Calleguas Creek Watershed is largely dependent upon imported water from the SWP. Many retail purveyors in the Calleguas Creek Watershed have no source of potable water other than the SWP, while others use imported water to blend with local groundwater to meet water quality standards. The Santa Clara River Watershed is also partially dependent upon imported water and partially on groundwater, with some local surface water sources as well. The Ventura River Watershed uses both groundwater and local surface water but does not import SWP water.

The availability of imported water from the SWP is subject to a number of natural and human forces and has become increasingly vulnerable to drought, catastrophic levee failures from flood and/or seismic events, and regulatory shut downs of pumping facilities to protect endangered species.

Groundwater resources are also under stress. Many aquifers in Ventura County are being pumped at, near, or beyond their practical sustainable yield. Additionally, many groundwater sources contain levels of salts that prevent or limit their use for agricultural, municipal, and industrial purposes. Seawater intrusion is an increasing problem along the coast and has already degraded the water quality of some groundwater supplies.

With the ongoing threats to both imported SWP and groundwater supplies, the need for improved water supply reliability is driving the need for projects that provide local water supply through brackish groundwater desalting, recycled water usage, and water conservation.

## **Water Quality**

One of the objectives of the WCVI IRWM Plan is to protect and improve water quality. The primary water quality challenges faced by Ventura County are related to salts accumulation in groundwater and surface water. The water quality of stormwater runoff is also a significant concern.

In the Calleguas Creek Watershed, historic and ongoing urbanization and agricultural activities have resulted in accumulation of salts in soils, surface water, and groundwater. Over time, the salts have become increasingly concentrated and much of the local groundwater can no longer be used due to salt-related water quality concerns. The salts have become a serious enough problem for the Regional Water Quality Control Board (RWQCB) to list Calleguas Creek and its tributaries as “impaired” necessitating the development of total maximum daily loads (TMDLs) for numerous constituents. Many of the projects in this Proposal in the Calleguas Creek Watershed are intended to protect the basin from further increases in salinity.

Similar salts-related issues are being experienced in the Santa Clara Watershed, where the RWQCB has established groundwater quality objectives for salts. Water quality improvement is vital for protecting essential groundwater and surface water supplies for agricultural, municipal, and industrial use.

The water quality of stormwater runoff is also a significant concern throughout all three watersheds. Stormwater runoff is known to contain significant levels of nutrients, bacteria, metals, and toxic compounds and developing cost-effective, low impact methods to address these contaminants and prevent them from reaching receiving waters is of paramount importance to Ventura County.

## **Flood Control**

One of the objectives of the WCVI IRWM Plan is to protect people, property, and the environment from adverse flooding impacts. The detrimental effect of watershed and floodplain urbanization is evident along numerous urban river corridors in Southern California, particularly the Los Angeles, San

Gabriel, and Santa Ana Rivers. The construction of levees and channelization of rivers has proven to be an unsuccessful approach to flood control, resulting in ecosystem damage, loss of habitat, scour, loss of recharge capacity, and increased urban runoff, while failing to avoid flooding in many areas. The cost of levee construction and maintenance is also extremely high.

By comparison, the rivers of Ventura County remain less developed and there are still opportunities to approach flood management differently in a way that manages rivers and preserves functioning floodplains more naturally. The need for alternative approaches to flood management is driven by the necessity for lower cost and less environmentally harmful solutions that protect properties from flood damage and provide water quality and habitat benefits.

### **Habitat and Recreation**

The final two WCVV IRWM Plan objectives relate to habitat (protect and restore habitat and ecosystems in our watersheds) and recreation (provide water-related public access, recreational, and educational opportunities).

Creating and enhancing both habitat and recreational opportunities remains crucial to preservation of the quality of life in Ventura County, where open space, agriculture, wildlife, and outdoor recreation are highly valued by residents and visitors alike.

Habitat in Ventura County, as elsewhere, is continually under pressure from development, invasive species, climate change, water quality issues, and competing water needs. Projects that integrate improvements in habitat value with water supply, water quality improvement, and flood control are particularly desirable. Natural approaches to resource management retain the natural state of Ventura County's watersheds which are unique to Southern California.

Many of the same pressures can negatively affect recreational opportunities. Similarly, the integration of recreational opportunities into projects that improve water supply, water quality, flood control, and habitat creates multi-faceted solutions to the many water-related

challenges faced by Ventura County. This objective is met by offering recreation that includes interaction with the ecosystem such as bird watching as well as educational and volunteer opportunities for ecosystem restoration both of which are vital to quality of life.

### **Project List**

A description of the eight projects that comprise this Proposal is provided in Table 1 and their locations shown on Figure 1. These projects are crucial to achieving the objectives of the WCVV IRWM Plan. The projects are described in greater detail in Section II. Work Items.



Table 1: Proposal Projects List

Project No.	Implementing Agency	Project Title	Project Summary	Design Status (percent complete )
R-1	City of Oxnard (Oxnard)	Ventura County Regional Urban Landscape Efficiency Program (VC-RULE)	VC-RULE is a partnership of nine agencies seeking to optimize irrigation practices and systems in the region by implementing landscape water use efficiency audits and improvements. This will translate to water savings and increased water supply reliability for Ventura County.	Project does not require design
C-14	Calleguas Municipal Water District (Calleguas)	Calleguas Regional Salinity Management Pipeline, Phase 2A (SMP Phase 2A)	Phase 2A of the SMP will extend the existing regional pipeline for collection and transfer of salty water by an additional 12,000 linear feet, allowing for concentrate discharge from potential future agricultural desalters and wet season discharge from the CamSan Recycled Water Interconnection.	60 percent design completed
C-13	Camrosa Water District (Camrosa)	Round Mountain Desalter	Round Mountain Desalter will treat local brackish groundwater using reverse osmosis technology to provide up to 1 million gallons per day (mgd) of a new source of potable water, improve local supply reliability, and reduce Camrosa's purchases of imported water by approximately 10 percent.	5 percent design completed
C-15	Camarillo Sanitary District (CamSan)	CamSan/Camrosa Recycled Water Interconnection (RW Interconnection)	The Recycled Water Interconnection will be 9,600 feet of 24-inch pipeline to link CamSan's water reclamation plant to the Camrosa storage ponds and the Calleguas SMP. This will allow up to 6.75 mgd of recycled water to be distributed to CamSan and Camrosa's customers from both the pipeline and the storage ponds.	Design for 7,300 LF 100 percent complete; design for remainder not started
SC-9	United Water Conservation District (UWCD)	Seawater Barrier Pilot Well	The approximately 1,200 feet deep Seawater Barrier Pilot Well will be installed to gain valuable information regarding aquifer effects and benefits through injection of up to 1,000 gallons per minute of potable water for up to 5 years. Additional wells may be added in the future to provide additional barriers to seawater intrusion through injection of potable and/or recycled water treated with reverse osmosis.	Design not started
SC-10	Ventura County Waterworks District No. 16 (VCWWD No. 16)	Piru Treatment Plant Tertiary Upgrade (Piru Tertiary Upgrade)	The Piru Treatment Plant Tertiary Upgrade will provide tertiary treatment such that the recycled water is suitable for reuse for irrigation. The new system will supersede the existing percolation ponds, eliminating a concentrated source of groundwater salinity.	Preparation of Design-Build procurement documents underway (~5 percent)
SC-7	The Nature Conservancy (TNC)	Natural Floodplain Protection Program (NFPP)	Implementation of the NFPP will preserve a critical section of the remaining undeveloped 500-year floodplain in the Santa Clara River Watershed by acquiring property easements to preclude development. Acquisition of these easements will provide downstream flood benefits by allowing flooding to occur upstream in the Watershed.	Project does not require design
V-5	Ojai Valley Land Conservancy (OVLC)	Ojai Meadows Ecosystem Restoration Final Phase (Ojai Meadows Ecosystem Restoration)	Ojai Meadows Ecosystem Restoration will remove non-native species and revegetate 41 acres of upland and transitional habitats in the Ojai Meadows Preserve for improved wildlife habitat. The restoration will also stabilize lands that drain to the wetlands that were developed in the prior phase of the project.	Design complete (100 percent)

## **Integrated Elements of the Projects**

The projects in the Proposal address common regional issues related to the WCVV IRWM Plan objectives. Individually and collectively, the projects offer multiple integrated benefits relative to water supply, water quality, habitat, flooding, and recreation. While some of the projects interface directly with each other, others are working toward complementary and mutual goals.

Detailed discussion of Integrated Elements of the Projects for each project in the Proposal can be found in the individual work plans in Section II. Work Items.

## **Regional Map**

A map showing the three WCVV watersheds, the areas of DAC based on the 2000 census within the region, as well as the eight projects in this Proposal is provided as Figure 1. Figure 2 shows the Groundwater Basins as identified in DWR Bulletin 118 within Ventura County as well as the projects in the Proposal.

## **Completed Work**

The range of completed work for each project varies. Each project has, at a minimum, been evaluated to establish its feasibility and been sufficiently developed to determine the tasks necessary to implement it (listed in the work plan), create a budget, and prepare a schedule. Many of the projects have completed some or all of the necessary California Environmental Quality Act (CEQA) documentation, land acquisition, permitting, and design. All of the projects are ready to proceed with the next steps when/if grant funding is awarded.

More detailed description of the completed work is included with the work plan for each project in Section II. Work Items.

## **Existing Data and Studies**

Existing Data and Studies have been prepared for all of the projects in this Proposal. At a minimum, each project has sufficient documentation to establish its feasibility. Many of the projects have completed some or all of the necessary CEQA documentation, background studies, geotechnical investigation, preliminary design, and design.

More detailed description of the Existing Data and Studies, including date and author, if available, is included with the work plan for each project in Section II. Work Items.

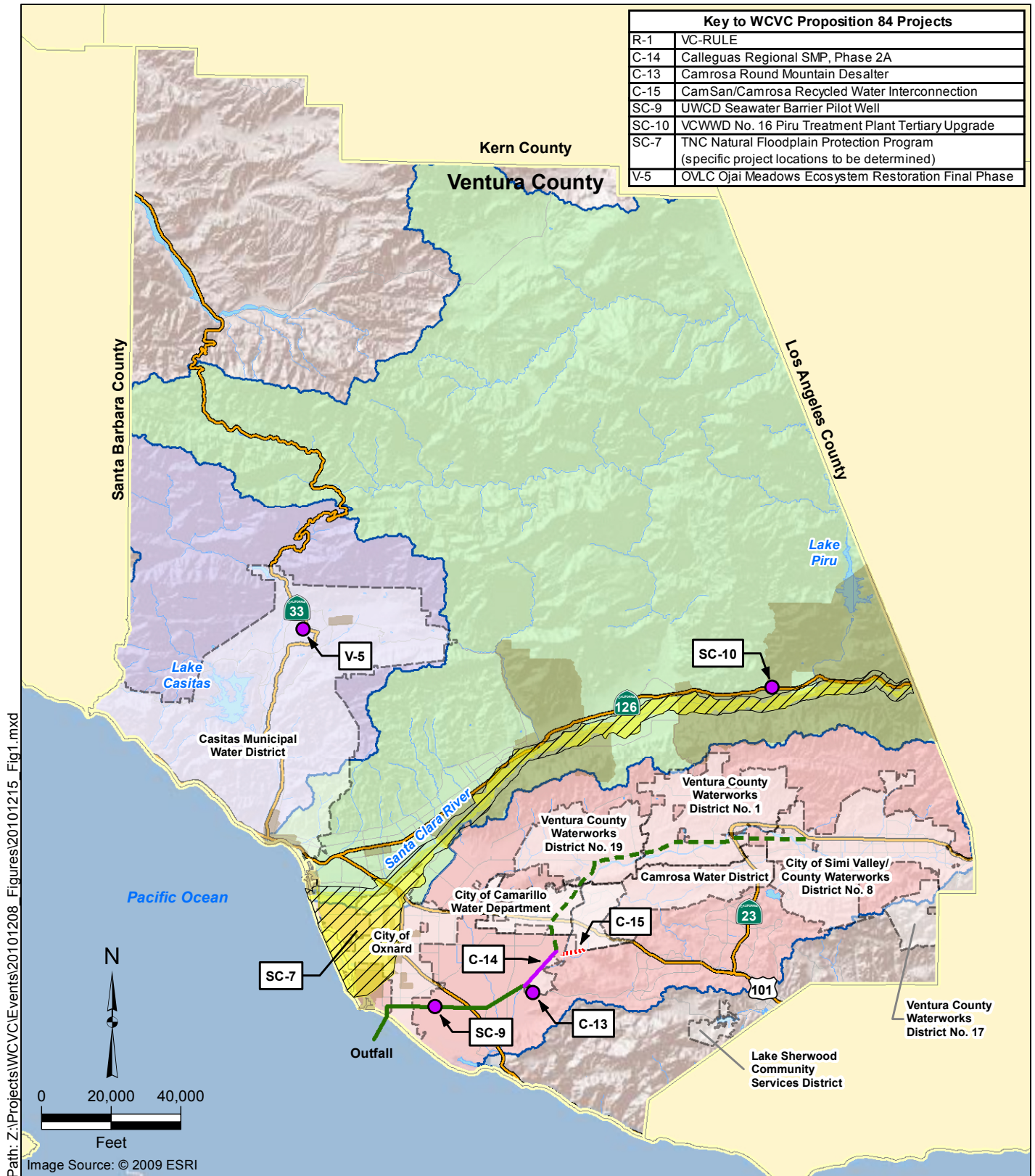
## **Project Map**

More detailed individual Project Maps are included with each work plan in Section II. Work Items.

## **Project Timing and Phasing**

The Project Timing and Phasing for each project is included with the work plan for each project in Section II. Work Items, as well as in Attachment 5.

Work for each project is already underway and all of the projects are ready to proceed with the next steps when/if grant funding is awarded. Most projects will be ready to bid shortly after anticipated funding award in June 2011 and will begin construction or implementation in late 2011 or early 2012. The majority of projects in this Proposal will be completed in 2013 or 2014.



### Kennedy/Jenks Consultants

Watersheds Coalition of Ventura County  
IRWMP Proposition 84 Grant Proposal  
Ventura County, California

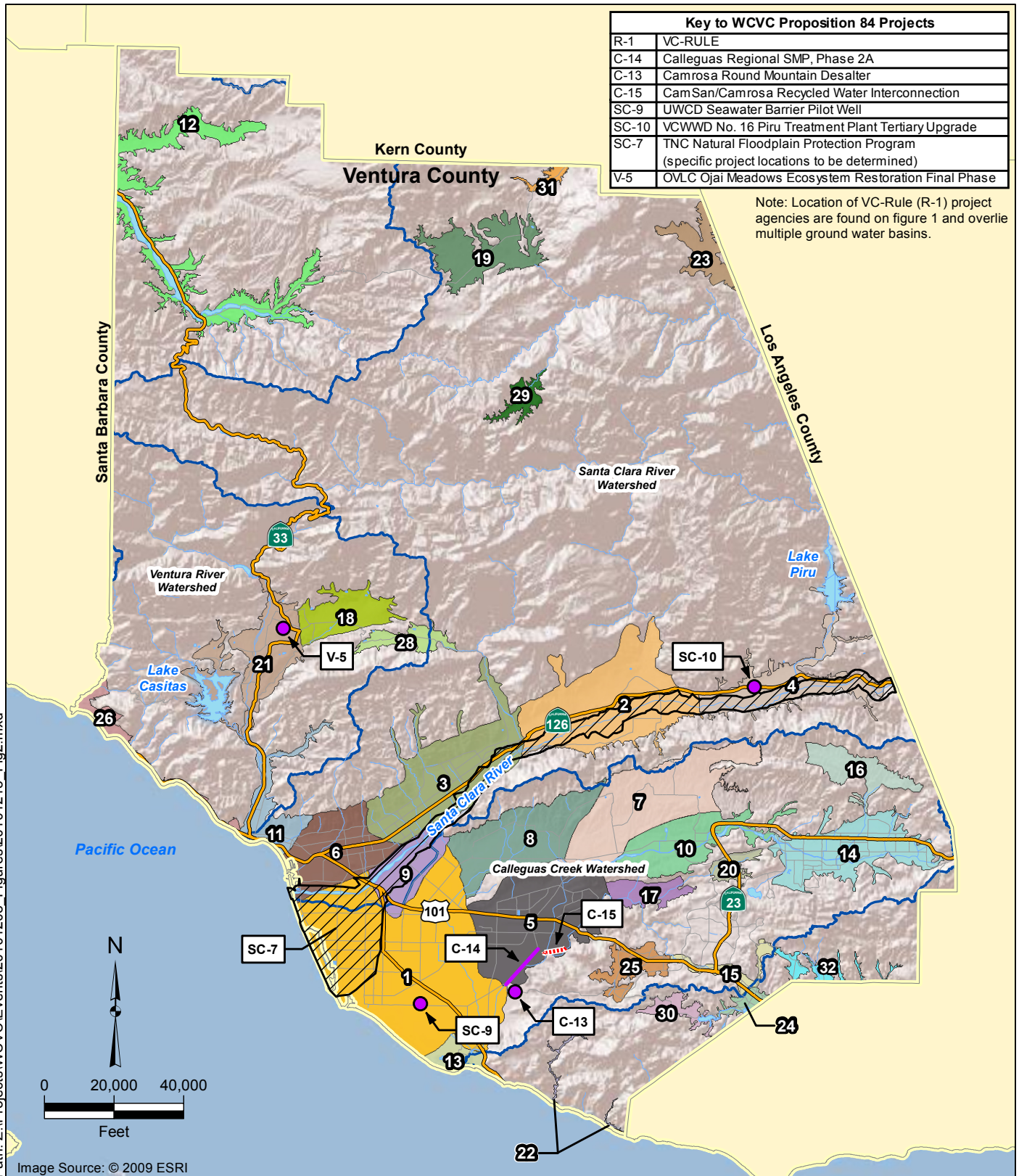
### WVC Proposition 84 Projects

K/J 1089055\*00  
January 2011

**Figure 1**



Path: Z:\Projects\WVCVEvents\20101208 Figures\20101215 Fig2.mxd



- WVCV Proposition 84 Project
- (1) Oxnard Plain Pressure
- (2) Fillmore
- (3) Santa Paula
- (4) Piru
- (5) Pleasant Valley
- (6) Mound
- (7) East Las Posas
- (8) West Las Posas
- (9) Oxnard Plain Forebay
- (10) South Las Posas
- (11) Lower Ventura River
- (12) Cuyama Valley
- (13) Mugu Forebay
- (14) Simi Valley
- (15) Thousand Oaks
- (16) Tapo Gillibrand
- (17) Arroyo Santa Rosa
- (18) Ojai Valley
- (19) Lockwood Valley
- (20) Tierra Rejada Valley
- (21) Upper Ventura River
- (22) South Coast
- (23) Hungry Valley
- (24) Russell Valley
- (25) Conejo Valley
- (26) North Coast
- (28) Upper Ojai
- (29) Mutau Flat
- (30) Sherwood
- (31) Little Cuddy Valley
- (32) Las Virgenes Cyn

### Kennedy/Jenks Consultants

Watersheds Coalition of Ventura County  
IRWMP Proposition 84 Grant Proposal  
Ventura County, California

### Groundwater Basins

K/J 1089055\*00  
January 2011

Figure 2



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Ventura County Regional Urban Landscape Efficiency Program

### VC-RULE

Contact: Dakota Corey  
City of Oxnard  
(805) 385-8143  
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City of Oxnard  
(805) 271-2222  
[Mark.Pumford@ci.oxnard.ca.us](mailto:Mark.Pumford@ci.oxnard.ca.us)

### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

### CALFED

#### Primary Objectives

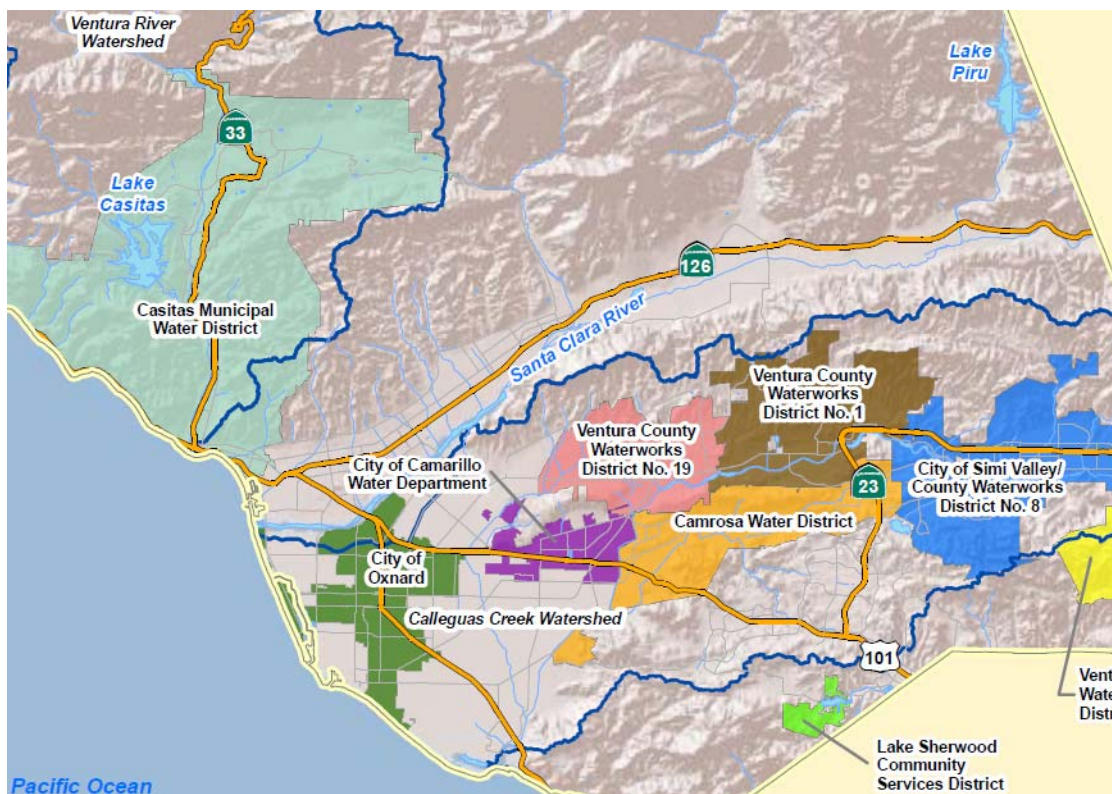
- ☒ Ecosystem quality
- ☒ Water supply
- ☒ Water quality
- ☐ Levee system integrity

### Project Description

With the goal of improving landscape water use efficiency on a regional scale, nine water agencies from Ventura County have partnered to implement the comprehensive Ventura County Regional Urban Landscape Efficiency (VC-RULE) Program. Participating agencies are:

- Camrosa Water District
- Casitas Municipal Water District
- City of Camarillo Water Division
- City of Oxnard
- City of Simi Valley/County Waterworks District No. 8
- Ventura County Waterworks District No. 1
- Ventura County Waterworks District No. 17
- Ventura County Waterworks District No. 19
- Lake Sherwood Community Services District.

By implementing VC-RULE, the agencies will optimize irrigation practices and systems on approximately 1,000 customer properties, translating to water conservation and improved water supply reliability for Ventura County. Landscape irrigation is known to be one of the largest water uses in the county, accounting for 44 percent of water use in Oxnard and even more in inland areas. Thus, it is a high priority target for the region's water conservation efforts. Water use efficiency improvements and conservation savings will be a low-cost new "source" of water.



VC-RULE Agency Service Areas





## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Ventura County Regional Urban Landscape Efficiency Program

### Watershed Coalition of Ventura County Primary Objectives

- ☒ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☐ Protect and restore habitat and ecosystems in our watersheds
- ☐ Provide water-related public access, recreational, and educational opportunities

The VC-RULE approach leverages best practices identified through evaluation of existing irrigation efficiency programs in neighboring communities. In particular, VC-RULE will maximize measurable water savings by bundling landscape irrigation surveys with installation of appropriate water-saving technologies, provided by a professional installer/vendor. Available equipment will include weather-based irrigation controllers, low precipitation rate irrigation nozzles, and rain shut-off sensors. Program marketing will be a shared responsibility among the participating agencies and vendor(s) hired to implement the program. All residential, commercial, and industrial customers with landscape irrigation needs will be eligible to participate in the program.

### Project Benefits

VC-RULE will deliver a unified regional message that water conservation, and specifically landscape water use efficiency, is an important and necessary component of the region's effort to improve water supply reliability. Based on results of similar programs, participants are expected to see a 20 percent reduction in water use. The approach, whereby vendors provide a seamless offering of landscapes surveys, device selection, and installation, will minimize customer attrition that is typical of programs where the customer is expected to take the initiative to implement recommendations. Further, compared to do-it-yourself installation by a property owner, proper installation and controller programming by an irrigation industry professional has been shown to result in greater water savings from the same device.

The stakes are high for achieving water conservation. The majority of participating agencies in VC-RULE import at least 50 percent of their water from the State Water Project (SWP). This imported water is costly and energy-intensive to deliver, and SWP supplies have become increasingly vulnerable to drought, catastrophic levee failures from flood and/or seismic events, and regulatory shut downs of pumping facilities to protect endangered species. In addition to water supply limitations, participating agencies must find ways to respond to statewide mandates for water conservation, including SB x7-7, AB 1420, and the California Urban Water Conservation Council's Best Management Practices. VC-RULE is a vital step to meeting the statewide water use efficiency mandates.

Improving the efficiency of landscape irrigation systems throughout the VC-RULE area will also provide a secondary benefit by reducing stormwater runoff that may carry pollutants into storm drains and local creeks or rivers.

### Cost and Schedule

Grant funding requested under Proposition 84 for VC-RULE is \$961,000. An additional \$320,000 will be obtained from other local funding sources to reach the total estimated project cost of \$1.28 million.

After an initial four-month preparation period, when target customers will be identified and installation vendors will be solicited and selected, the balance of the three-year contract period will be for direct implementation.



## I. Ventura County Regional Urban Landscape Efficiency Program

### Project Description

This Work Plan describes the Ventura County Regional Urban Landscape Efficiency Program (VC-RULE), a regional urban landscape water use efficiency program designed to improve irrigation efficiency, conserve water, and improve the reliability of Ventura County's water supply.

Nine water agencies representing Ventura County's three primary watersheds have partnered to establish VC-RULE as a regional landscape water use efficiency program:

- Camrosa Water District
- Casitas Municipal Water District
- City of Camarillo Water Division
- City of Oxnard (Oxnard)
- City of Simi Valley/County Waterworks District No. 8
- Ventura County Waterworks District No. 1
- Ventura County Waterworks District No. 17
- Ventura County Waterworks District No. 19
- Lake Sherwood Community Services District

The City of Oxnard is taking the lead in coordinating the program for the other participating agencies. By taking a regional approach to addressing landscape irrigation inefficiencies throughout Ventura County, VC-RULE aims to not only conserve a significant amount of water, but also to deliver a unified regional message that water conservation, and specifically landscape water use efficiency, is an important and necessary component of the region's larger efforts to improve water supply reliability. One of the unique features of VC-RULE's approach to maximizing water savings is that it will bundle landscape irrigation surveys with installation of water savings technologies.

Improving landscape irrigation efficiency will also provide a secondary benefit by reducing stormwater runoff and non-point source pollutant transport to surface waters. In most urban areas, irrigation runoff occurs due to overwatering and/or overspray onto sidewalks, driveways, streets, and other hard surfaces. This is often attributable to poor irrigation system design and/or maintenance. Therefore, VC-RULE will help to limit runoff that would enter the storm drain system and/or flow to local creeks and rivers.

All residential, commercial, and industrial customers with landscape irrigation needs will be eligible to participate in the program. Participants are expected to see a 20 percent reduction in water use. This estimate is substantiated by several similar programs that have shown equal or greater water savings. For example, a weather-based irrigation controller (WBIC) installation program implemented by the Los Angeles Department of Water and Power (LADWP) resulted in 17 to 28 percent water savings for large commercial landscapes (LADWP 2003). Similarly, a controller installation program conducted by the Irvine Ranch Water District (2001) led to an estimated 16 percent reduction in outdoor water use, or a 7 percent reduction of overall household water use for single-family residences.

VC-RULE has been designed to achieve the greatest possible water savings by considering the findings of the study, *Evaluation of California Weather-Based "Smart" Irrigation Controller Programs* (Mayer, DeOreo, Hayden, Davis, Caldwell, Miller & Bickel 2009). Consistent with recommendations from this study, VC-RULE will be targeting landscapes with historically high irrigation application rates, rather than just high total irrigation use, to maximize water savings. These landscapes will be identified using participating agencies' utility billing data, and where possible, GIS applications. Program marketing and customer enrollment will be a shared responsibility among the participating agencies and the vendor(s) hired to implement the program, as



outlined in the VC-RULE Marketing Plan, Program Guidelines, and Monitoring Plan (Marketing/Program/Monitoring Plan Outline) provided as Exhibit 3-1 to this Work Plan.

To date, landscape water efficiency programs have been initiated in many communities in California, and the challenges inherent in relying on customer implementation to achieve savings are well-known. To avoid some of the most common pitfalls, VC-RULE will “bundle” landscape irrigation surveys with professional installation of water saving technologies, including WBICs, low precipitation rate irrigation nozzles, and rain shut-off sensors. This approach will deliver the best results for several important reasons:

- It will ensure that recommendations from landscape surveys are directly implemented, rather than identified for possible action by the customer at a later date. This will guarantee greater water savings than would be obtained with discrete survey, rebate, and direct installation programs.
- Irrigation industry professionals will be able to integrate new devices with existing irrigation systems and program them to function in an optimal manner.
- Compared to do-it-yourself installation by the property owner, proper installation and controller programming by an irrigation industry professional has been shown to result in greater water savings from the same device.

Because WBICs are more expensive to purchase than conventional water-saving devices, VC-RULE will seek to maximize the water savings per program dollar by limiting direct installation of WBICs to customers with lot sizes greater than 1 acre, which is consistent with an analysis conducted in Oxnard (Water Conservation Master Plan 2010). Customers with lots smaller than 1 acre will receive direct installation of low precipitation rate nozzles and a rain shut-off sensor. Low precipitation rate irrigation nozzles and rain shut-off sensors have been shown to be cost-effective for any lot size.

All WBICs and moisture sensors installed through VC-RULE will be products that have

been tested by a third party using Smart Water Application Technologies (SWAT) protocols (<http://www.irrigation.org/SWAT/swat.aspx?id=298>). SWAT is a national partnership of water purveyors and irrigation industry representatives that was formed to promote landscape water use efficiency through the application of state-of-the-art irrigation technologies. SWAT's testing protocols and third-party product testing results provide valuable information on the effectiveness of the water saving technology.

An installation contractor with appropriate qualifications and experience will be selected through a procurement process following award of the grant, as described in the Marketing/Program/Monitoring Plan Outline. The City of Oxnard will enter into a trade services agreement with the contractor. An example agreement is provided in Exhibit 3-1. Given the number of communities in Southern California with similar needs, vendors have begun to offer “turn-key” solutions to agencies wishing to implement landscape water use efficiency programs; this experience will be beneficial to VC-RULE.

The contractor will conduct landscape surveys in which existing irrigation systems are evaluated and adjusted to reduce overspray and runoff and to correct other minor operational issues. As appropriate, this will be followed by professional installation of water-saving devices, including WBICs for larger sites and low precipitation rate nozzles and rain shut-off sensors for smaller sites.

If the survey identifies poor irrigation distribution uniformity or the need for significant repairs, customers will be provided with an audit summary identifying the necessary improvements. They will be required to make these improvements prior to installation of new equipment. After installing equipment, the vendor will follow up with a telephone call to each customer to ensure they understand how to use the new controller or other equipment and are satisfied with the results.

VC-RULE agencies will evaluate baseline water use and will track water savings attributable to the program at a minimum of half of the customer sites (or more, if staff resources are available) to assess water savings.

## Goals and Objectives

The overall goals and objectives of VC-RULE are as follows:

- To establish a regional landscape water use efficiency program in Ventura County.
- To reduce the amount of water used to irrigate landscapes across Ventura County.
- To improve the region's water supply reliability through greater water conservation.
- To reduce urban runoff through improvements in landscape irrigation system maintenance and management.

## Purpose and Need

**Irrigation is a significant water use.** It is estimated that 40 to 60 percent of Southern California's municipal water use is for landscape irrigation. In Ventura County, the coastal city of Oxnard uses approximately 44 percent of its total water supply for landscape irrigation (Water Conservation Master Plan 2010). The County's inland cities use even higher percentages of water for landscape irrigation, since evapotranspiration rates increase with the higher temperatures found further from the ocean. In addition, many of the inland communities feature much larger lot sizes than Oxnard. Thus, regional efforts to achieve significant water conservation must consider landscape irrigation.

**Landscape irrigation systems are inefficient.** This is often attributable to poor maintenance and management. Once an automatic irrigation controller and sprinkler system is installed, customers often take a hands-off approach to managing it, which can result in maintenance issues and large amounts of water waste. VC-RULE will identify and address these kinds of issues through landscape surveys, coupled with professional installation of appropriate water-saving devices, including WBICs for

larger sites and low precipitation rate nozzles and rain shut-off sensors for smaller sites to improve irrigation efficiency. The contractor will be responsible for showing the customer how to operate the controller for best results.

**Typical rebate programs have pitfalls.** In many conservation programs, landscape surveys are conducted and a customer is offered a rebate to purchase and install certain recommended equipment. However, the customer is not obligated to carry out the recommendations, and the water savings may never materialize. Also, many rebate programs require a significant amount of paperwork and require the customer to pay for the devices before they can be reimbursed. As a result, customers may not be sufficiently motivated to take advantage of rebate programs. Under VC-RULE, equipment will be installed directly, reducing participant attrition.

**Conservation is a reliable "source" of water.** The majority of participating agencies in VC-RULE receive at least 50 percent of their water from imported water sources, specifically State Water Project (SWP) water provided by Calleguas Municipal Water District, a member agency of Metropolitan Water District of Southern California. By reducing water demand for landscape irrigation, VC-RULE can reduce dependence on imported SWP water and increase reliability of their water supply to meet demand. This is a regional goal, as described in the Watersheds Coalition Ventura County (WCVC) Integrated Regional Water Management Plan (IRWM Plan).

**Statewide water conservation mandate must be addressed.** Implementation of VC-RULE will also be important to participating agencies that have been tasked with finding ways to respond to various state-wide water conservation goals and legislation, including SB x7-7, AB 1420, and the California Urban Water Conservation Council's (CUWCC) Best Management Practices. Each of the participating agencies is currently in the process of developing a comprehensive approach to address these initiatives. The agencies are all members of the CUWCC, but to date, not all are operating in accordance with the CUWCC's best management practices, as

outlined in CUWCC's Memorandum of Understanding. VC-RULE will help these agencies make necessary improvements, ensuring that all of the VC-RULE participants are responsive to the State's mandate to reduce urban water use.

### **Integrated Elements of Projects**

As a water use efficiency project, VC-RULE is foundational to and integrates with the other water management activities in the County. For many of the nine VC-RULE water agencies, water use efficiency is part of an integrated portfolio of water management tools that also includes recycled water, groundwater desalting, and aquifer storage and recovery. In addition, by providing water use efficiency tools to the nine agencies, it will help integrate the activities of all of the agencies for more efficient program delivery.

The agencies that have committed to participating in VC-RULE have been collaborating successfully for several years to coordinate regional water use efficiency programs. VC-RULE will benefit from these agencies' proven track record of working together to implement regional landscape water use efficiency projects.

For example, in August 2009, five of the agencies collaborating on VC-RULE worked together to create [Water Wise Gardening in Ventura County](http://www.venturawatersavingplants.com), an interactive website (<http://www.venturawatersavingplants.com>) featuring water wise gardens located throughout Ventura County. Using virtual garden tours, an interactive plant database, and a detailed set of garden resources, Water Wise Gardening aims to educate residents about and inspire them to incorporate water-saving practices and designs in their landscapes, with the overall goal of reducing landscape water use.

VC-RULE will continue to use Water Wise Gardening as a platform for outreach, offering landscape evaluations and direct installation of water-saving technologies that supplement the website's educational content. Thus the integration of VC-RULE with Water Wise Gardening will strengthen the message of both programs that landscape water use efficiency is

an important strategy for reducing water use in Ventura County.

The "soft" approach offered by VC-RULE, whereby water supply reliability is improved through demand management, will also complement Ventura County's concurrent "hard" approaches that develop capital improvement projects to provide additional water supply and improve supply reliability. Given the large potential for water savings through conservation in Ventura County, there will continue to be a need for both approaches. For reducing landscape water use, however, VC-RULE is the most effective option.

The improvements in stormwater management that will be achieved through VC-RULE correlate with the IRWM Plan goal to protect and improve water quality, and will assist in meeting the requirements of the recently adopted Ventura County Stormwater NPDES Permit No. R4-2010-0108. As noted above, the reduced dependence on imported SWP water and increased reliability of the water supply that can be achieved with VC-RULE meets another regional goal of the IRWM Plan.

### **Completed Work**

VC-RULE has already prepared a Marketing/Program/Monitoring Plan Outline, which describes the framework for implementation, as provided in Exhibit 3-1. Program guidelines will be defined in greater detail in the scope of work associated with the request for proposals from implementation vendors.

At least half of the participating agencies have already begun evaluating their utility billing data to identify customers with high landscape irrigation application rates. The methods used by these agencies will be shared with VC-RULE's other participating agencies to help develop a master list of targeted customers.

### **Existing Data and Studies**

The following prior studies were considered in development of VC-RULE:

- *City of Oxnard Conservation Master Plan, Final Draft.* September 2010. A&N Technical Services, Inc.

- *LADWP Weather-Based Irrigation Controller Pilot Study*. August 2004. Bamezai. [http://hydropoint.com/pdfs/studies/LADWP\\_pilot\\_2002\\_2003.pdf](http://hydropoint.com/pdfs/studies/LADWP_pilot_2002_2003.pdf)
- *Residential Weather-Based Irrigation Scheduling: Evidence from the Irvine ET Controller Study*. June 2001. Hunt, Lessick, Berg, Wiedmann, Ash, Pagano, Marian, & Bamezai. [http://hydropoint.com/pdfs/studies/Irvine\\_Ranch\\_Water\\_District\\_Metropolitan\\_Water\\_District\\_1.pdf](http://hydropoint.com/pdfs/studies/Irvine_Ranch_Water_District_Metropolitan_Water_District_1.pdf)
- *Evaluation of California Weather-Based "Smart" Irrigation Controller Programs*. July 2009. Mayer, DeOreo, Hayden, Davis, Caldwell, Miller, & Bickel. [http://www.creativecls.com/pdf/articles/Evaluation\\_of\\_California\\_Smart\\_Controller\\_Programs\\_-\\_Final\\_Report.pdf](http://www.creativecls.com/pdf/articles/Evaluation_of_California_Smart_Controller_Programs_-_Final_Report.pdf)

These documents demonstrate the water savings potential for VC-RULE. In addition to water savings, the City of Oxnard Water Conservation Master Plan also establishes the cost effectiveness of the program for the City in a manner which can be extrapolated to the other participating agencies.

## **Project Map**

Figure 3 illustrates the area eligible to participate in VC-RULE, boundaries of the three watersheds that divide the area, and the service areas of the individual participating agencies.

## **Project Timing and Phasing**

VC-RULE is a stand-alone landscape water use efficiency project. It is not a phase of a larger multi-phased project, and there are no contingencies to other work schedules.

As shown on the detailed project schedule in Attachment 5, program preparation activities will be completed within four months of contract award in June 2011. Preparation, which has already been initiated, will include evaluation of customer data to identify target customers and vendor solicitation and vendor contract execution. The vendor's notice to proceed is anticipated to be issued on 1 October 2011, and implementation activities will continue through June 2014.



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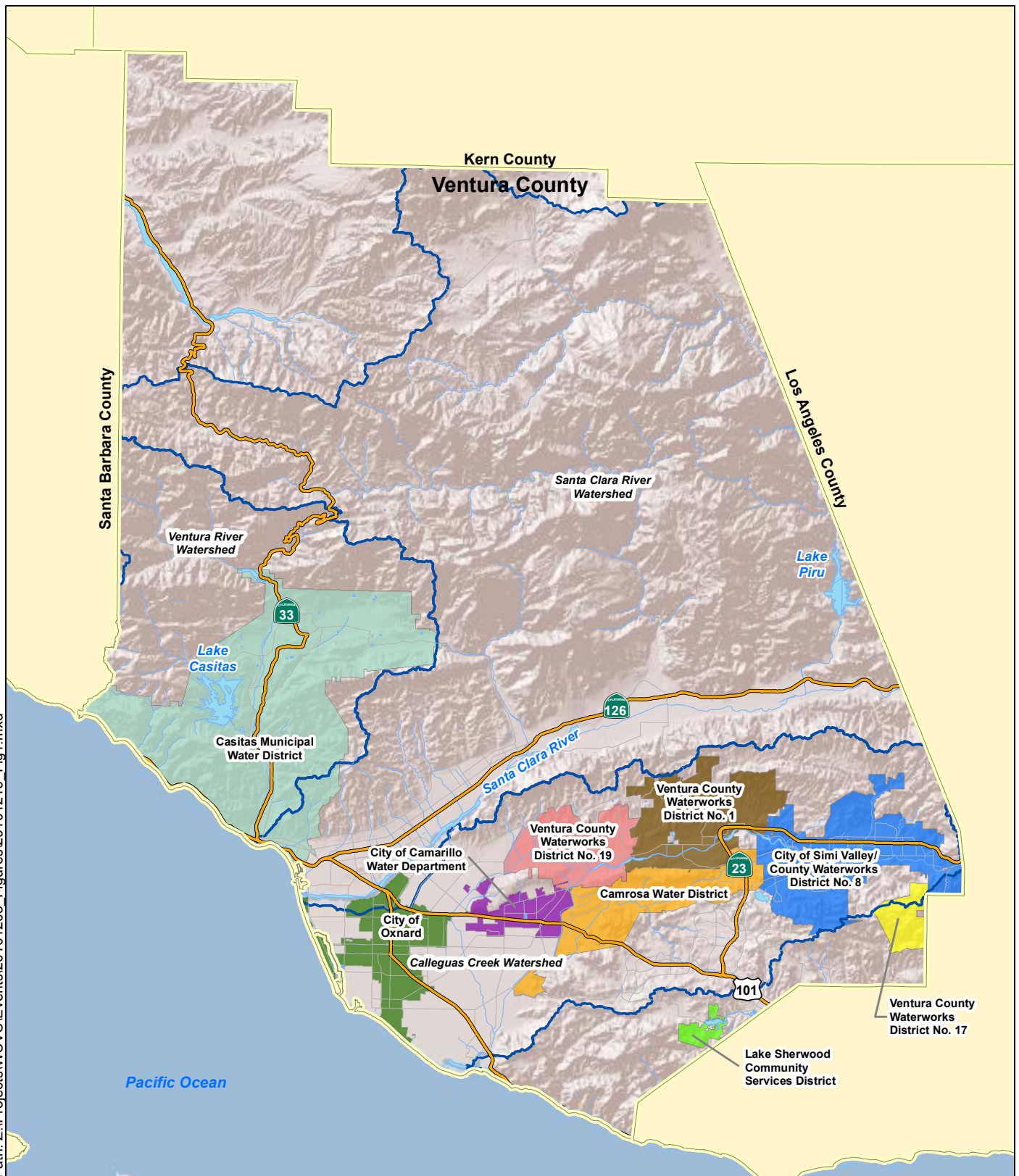
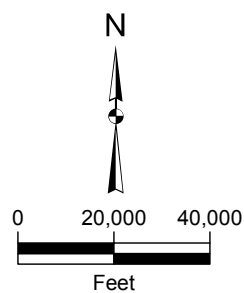


Image Source: © 2009 ESRI



**Kennedy/Jenks Consultants**  
Watersheds Coalition of Ventura County  
IRWMP Proposition 84 Grant Proposal  
Ventura County, California

**Ventura County Regional Urban Landscape  
Efficiency Program Location**

K/J 1089055\*00  
January 2011

**Figure 3**

## II. Work Plan

Tasks necessary to implement VC-RULE are described in Table 2.

Table 2: Work Plan for Ventura County Regional Urban Landscape Efficiency Program

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration Description: Prepare and submit invoices. Deliverables: Invoices.
Task 2: Labor Compliance Program Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b). Deliverables: Documentation of labor compliance activities will be submitted to DWR as requested.
Task 3: Reporting Description: Prepare quarterly and final reports as specified in the Grant Agreement. Deliverables: Quarterly and final reports as specified in the Grant Agreement.
Task 4: Assessment and Evaluation Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. Reporting will be addressed in Task 3. Deliverables: Monitoring Plan.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 5: Land Purchase/Easement Description: No land purchases or easements are required to implement VC-RULE. Deliverables: N/A
<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
Task 6: Consumption Data Evaluation and Target Customer Identification Description: Each participating agency will analyze its customer-level water consumption data to identify water customers with the greatest potential for water savings through VC-RULE. Customers will be targeted based on a history of high water application rates, rather than just high water use, to maximize the program's effectiveness. While VC-RULE will be available to all customers within each agency's service area, the customers identified in this task will be specifically targeted for participation. Implementation vendors will receive a list of these customers to prioritize contact. Deliverables: List of targeted customers.

#### Task 7: Environmental Documentation

VC-RULE is categorically exempt under the California Environmental Quality Act (CEQA) under CEQA Guidelines, Section 15061 (b) (3). Therefore no environmental documentation is required.

Deliverables: N/A

#### Task 8: Permitting

No permits will be required to implement and complete VC-RULE.

Deliverables: N/A

### **Budget Category (d): Construction/Implementation**

#### Task 9: Vendor Procurement

The VC-RULE implementation contract will be advertised for bidding through standard Oxnard procurement procedures. Oxnard will develop and release a Request for Proposals (RFP) that will include both the purchase and installation of smart controllers, rain sensors, and high efficiency nozzles. Therefore, Oxnard will not be responsible for inventory. The RFP will be sent to local C-27 licensed landscape contractors and/or consulting firms specializing in the management of landscape water conservation programs. The RFP will ask respondents to demonstrate knowledge and expertise for landscape surveys; adjustment and repair of existing irrigation systems, and installation of smart controllers, rain sensors, and nozzles. Evidence of excellent customer service and program administration will also be considered in evaluation of potential vendors.

The pricing structure from the contractor will be on a per unit basis for the controller, controller installation, rain sensor, rain sensor installation, nozzle, and the nozzle installation. The unit costs also includes marketing, evaluation site visit, adjustment of existing systems, customer service follow-up calls, and administration and reporting.

VC-RULE's partners will review the proposals for completeness and to determine whether vendors meet the experience requirements and other criteria. The project will be awarded to the most qualified bidder with a cost-effective proposal. Upon selection, Oxnard will enter into a trade services agreement with the vendor.

Deliverables: Agreement between City of Oxnard and Vendor.

#### Task 10: Program Implementation

Description: An outline of the Marketing/Program /Monitoring Plan has been developed by VC-RULE and is found in Exhibit 3-1, and will be further defined in the vendor scope of work. The main components of the scope of work are highlighted below.

- **Marketing and outreach to potential program participants:** Each participating agency will identify customers in their service area with the highest irrigation water application rates (i.e., water consumption per area of landscape) in two landscape size categories: less than 1 acre or greater than 1 acre. Agencies will send targeted customers an introductory letter announcing eligibility for the program. The lists of targeted customers will be provided to the vendor, who will conduct telephone screening of customers and schedule the landscape surveys. Customers/property owners will be required to sign a liability waiver/hold harmless agreement to hold Oxnard and participating agencies harmless for the work conducted on the customers' property. It will also establish the relationship between the contractor, the VC-RULE agencies, and the customer.



- **Landscape water use surveys:** The vendor will conduct on-site landscape surveys to determine the condition of the existing irrigation systems and landscapes, as well as identify the equipment needs for the new controllers and nozzles. The customer will be informed if repairs are needed, and whether existing controllers may be reprogrammed for better results. The survey will also be an opportunity to educate customers about the importance of conservation and the benefits of actively maintaining their irrigation system, both to reduce water waste and save money on their water bills. If a system is found to have poor distribution uniformity or requires significant repairs, the customer will need to make these improvements prior to installation of the new equipment under VC-RULE. Using the data obtained during the on-site landscape survey, the vendor will develop a water budget for each customer's landscape. The vendor will leave the customer with a written summary of findings, recommendations, and next steps.
- **Installation and programming (when necessary) of water-saving devices:** The vendor will install devices, activate controllers, and test operation, as appropriate. The vendor will also complete paperwork associated with the installation.
- **Follow-up with participating customers:** The vendor will follow-up on each installation with a telephone conversation, and a site visit if warranted. The purpose of the call is to ensure the customer understands how to use and program the controller and is satisfied with the program.
- **Summarize customer installation data:** The vendor will provide VC-RULE with a database of accrued customer evaluation and installation data on a monthly basis.
- **Monitor effectiveness:** At approximately one-half of the installation sites, the vendor will be responsible for collecting one year of water use data for comparison to the baseline water budget (pre-retrofit). The datasets will be normalized to account for variations in weather. This analysis will be used to assess incremental savings on a site-specific basis, and may be extrapolated to estimate total water savings under VC-RULE.

Deliverables: Example introductory letter, landscape survey results, customer database, installation and follow-up documentation, monitoring report.

#### **Budget Category (e): Environmental Compliance/Mitigation/Enhancement**

##### Task 11: Environmental Compliance/Mitigation/Enhancement

This project includes no earth movement or other activities requiring Environmental Compliance/Mitigation/Enhancement; therefore, this task is not applicable.

Deliverables: N/A

#### **Budget Category (f): Construction Administration**

##### Task 12: Program Administration

Description: During implementation, Oxnard staff will provide project implementation management and administration, including oversight of and coordination with the vendor, assurance of customer satisfaction with the program, and any necessary documentation.

Deliverables: Quarterly reports prepared under Task 3.

### III. Other Required Information

#### **Procedures**

VC-RULE participating agencies will formally establish their partnership and commitment to the program through a memorandum of understanding. The official project proponent for VC-RULE will be the City of Oxnard. As such, Oxnard will hold the agreement with the vendor that will implement VC-RULE. Participating agencies will be encouraged to participate in the vendor procurement process. Oxnard will also be the primary program administrator for VC-RULE.

Customers participating in VC-RULE will sign a "Hold Harmless Agreement" or other similar document prior to the vendor entering his/her private property and performing a landscape survey and/or installing new irrigation technologies. A draft agreement is provided in Exhibit 3-1.

#### **Standards**

VC-RULE will be implemented in accordance with practices consistent with other similar programs and appropriate for the VC-RULE agencies.

Irrigation controllers installed through VC-RULE will meet the standards established by SWAT as described earlier. The term "Smart Water Application Technologies" includes any irrigation product and/or practice that delivers proven, exceptional landscape water use efficiency.

#### **Development of Monitoring Plan**

A Monitoring Plan for VC-RULE will be prepared under Task 5.

At least 50 percent of the customers receiving WBICs will also receive a follow-up survey to ensure that their controller is programmed correctly to maximize water savings. The survey will also include review of billing records before and after implementation of the VC-RULE program.

#### **Status of Acquisition of Land or ROWs**

The implementation of VC-RULE does not require the acquisition of land or any right-of-ways (ROWs). Landscape irrigation surveys and the installation of water efficient technologies will occur on property owned by water customers within the service area of the program, with their written approval.

#### **Building Materials, Project Design Status, and Bid Solicitation Efforts**

The vendor scope of work will specify that irrigation controllers installed through VC-RULE will meet the standards established by SWAT, as discussed under Standards above.

To solicit vendors to implement VC-RULE, an opportunity to bid will be advertised through standard City of Oxnard procurement procedures. Refer to Work Plan Task 9 for details.

#### **Permits**

No permits will be required to implement and complete VC-RULE. Refer to Work Plan Task 8 for details.

#### **Status of Preparation and Completion of Environmental Requirements**

VC-RULE is considered Categorically Exempt from CEQA.

#### **Work Items to Complete GWMP**

VC-RULE overlies several groundwater basins that are recognized by the Department of Water Resources in Bulletin 118 as discussed in Section I. Introduction and Overview. Groundwater management plans have been prepared for the Fox Canyon Groundwater Management Agency as found in Exhibit 1-2 (Att1\_IG1\_Eligible\_3of5.pdf on BMS) and for the Ojai Basin Groundwater Management Agency and found in Exhibit 1-3 (Att1\_IG1\_Eligible\_4of5.pdf on BMS.)

#### **Submittals to Granting Agency**

Status reports, in the form requested by the granting agency, will be submitted on a

quarterly basis. A report will also be prepared once the project is completed. Other items required by the grant contract will also be submitted to the granting agency.

### **Design Plans and Specifications**

VC-RULE is not a construction project. As such, no design plans are required to implement it. Simple project specifications, including the requirement that all installed models of weather-based irrigation controllers be SWAT tested, will be included in the scope of work portion of the vendor's agreement.

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## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Calleguas Regional Salinity Management Pipeline, Phase 2A

### Calleguas Municipal Water District

Contact: Kristine McCaffrey  
(805) 579-7173  
[kmccaffrey@calleguas.com](mailto:kmccaffrey@calleguas.com)

#### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

#### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

#### CALFED

##### Primary Objectives

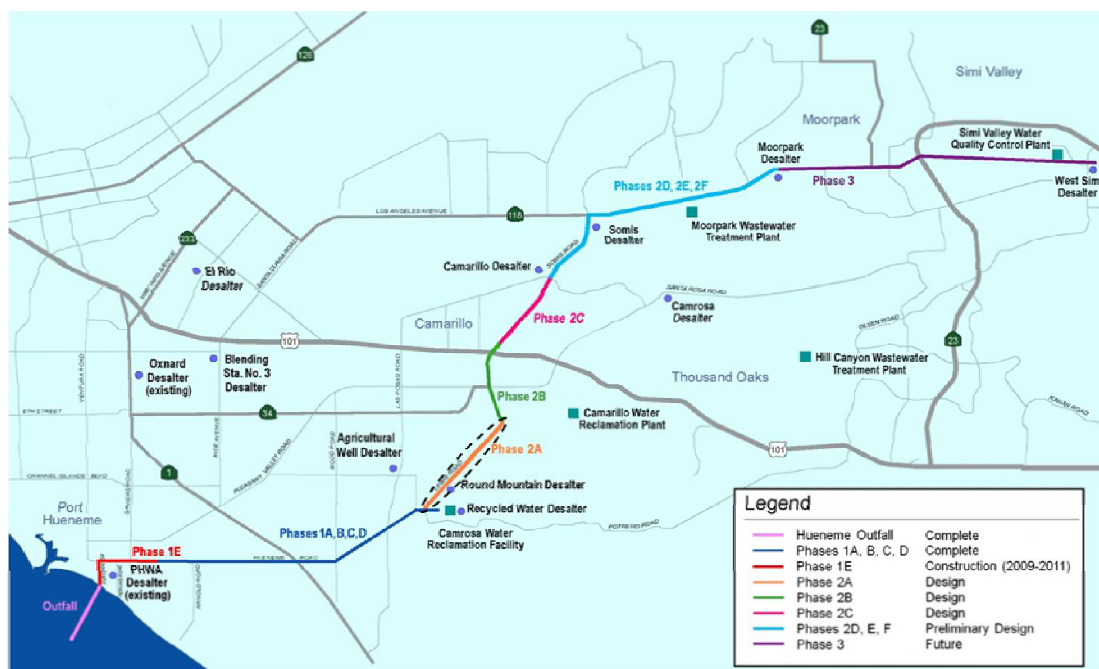
- ☒ Ecosystem quality
- ☒ Water supply
- ☒ Water quality
- ☐ Levee system integrity

### Project Description

Historic and ongoing urbanization and agricultural activities in the Calleguas Creek Watershed have resulted in accumulation of salts in soils, surface water, and groundwater within this basin. Over time, the salts have become increasingly concentrated and much of the local groundwater can no longer be used due to salt-related water quality concerns. The salts have become a serious enough problem for the Regional Water Quality Control Board (RWQCB) to list Calleguas Creek and its tributaries as “impaired,” triggering development of total maximum daily loads (TMDLs) for numerous constituents.

To meet TMDLs and protect the basin from further increases in salinity, as well as restore groundwater for use as a drinking water supply, Calleguas Municipal Water District (Calleguas), in collaboration with other agencies and stakeholders, has initiated the Calleguas Regional Salinity Management Pipeline (SMP). The SMP is a regional pipeline that will facilitate collection and transfer of salty water produced as a by-product of brackish groundwater desalting, conventional treated wastewater, and various saline industrial waste streams to locations where appropriate reuse can occur. For example, beneficial uses of the water may be identified for certain kinds of agriculture or wetlands. Any unused salty water will be safely discharged to the ocean, where natural salt levels are much higher.

Significant portions of the SMP have already been completed, as shown on the project map below. To date, approximately 7 miles of 48-inch pipeline have been constructed (Phases 1A through 1D), along with an ocean outfall for discharge. The final 2 miles of Phase 1 (Phase 1E) are currently under construction and scheduled for completion in 2011.



Project Map and Completion Status



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Calleguas Regional Salinity Management Pipeline, Phase 2A

### Watershed Coalition of Ventura County Primary Objectives

- ☒ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☒ Protect and restore habitat and ecosystems in our watersheds
- ☐ Provide water-related public access, recreational, and educational opportunities

Phase 2A will consist of approximately 12,000 linear feet of 30-inch-diameter pipe that will extend the SMP further into the Calleguas Creek Watershed to reach additional users. It will connect to the upstream end of the SMP Phase 1D, which terminates just north of the Camrosa Water Reclamation Facility's access road. From this point, the pipeline alignment will run in the now-abandoned Old Lewis Road, parallel to Calleguas Creek, to its end near the bridge. Then it will run in easements adjacent to (new) Lewis Road, north and eastward across agricultural properties. The upstream terminus of Phase 2A will be located at approximately Cawelti Road.

### Project Benefits

- **Water Supply:** Enables Southern Ventura County water agencies to obtain new local water supplies from existing poor quality groundwater. Phase 2A enables approximately 5,600 acre-feet per year (AFY) of potable and agricultural water supply to be brought on-line by providing concentrate and wet season recycled water disposal. This is also a critical link to bringing an additional 34,000 AFY on-line as part of future phases.
- **Distribution:** Distributes non-potable water to areas where it can be used for irrigation, offsetting their need for municipal supplies.
- **Salt Management:** Safely releases salts to the ocean, where they cause no harm. Phase 2A would result in 8,600 tons per year of salt being removed from the Watershed and is a critical link to removal of an additional 85,000 tons per year from the upper reaches as part of future phases.
- **Regional Integration:** Makes it possible for groundwater desalter projects, such as the Round Mountain Desalter, to proceed by addressing the saline waste disposal challenge.
- **Water Quality:** Improves the quality of water flowing into creeks by providing an alternate wet season recycled water disposal for wastewater plant discharges, such as from the CamSan Recycled Water Interconnection (C-15), thus reducing saline discharges to surface waters in order to meet TMDLs.
- **Watershed Management:** Helps local communities meet water quality standards for Calleguas Creek and tributaries, avoiding costly regulatory enforcement fines.
- **Water Supply Reliability:** Reduces dependence on imported water from the sensitive Delta ecosystem, which is vulnerable to drought, catastrophic levee failures, and limits on use to protect endangered species.
- **Climate Change:** Reduces greenhouse gas emissions associated with energy use to import water supplies.

In short, by treating groundwater to remove salts and moving those salts away from surface waters and into the SMP, the water agencies will be solving a water quality problem while improving local supply reliability.

### Cost and Schedule

Grant funding requested under Proposition 84 for Phase 2A of the SMP is \$3.75 million. An additional \$11.25 million will be obtained from other funding sources to meet the total estimated cost of \$15 million. CEQA documentation has been completed, and design, permitting, and right-of-way acquisition are underway. Plans and specifications at 60 percent completion have been prepared. It is anticipated that the project will be ready for construction in summer 2011.



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

#### I. Calleguas Regional Salinity Management Pipeline, Phase 2A

##### Project Description

The Calleguas Creek Watershed has experienced salt accumulation in soils and water supplies from historic and ongoing point and non-point source pollution from urbanization and agriculture. Most of the surface water and groundwater in the Calleguas Creek Watershed contains high levels of total dissolved solids (TDS), chloride, sulfate, and boron resulting from the use of high TDS groundwater supplies, fertilizer use in agricultural activities, and discharges from wastewater plants. Continued use of water from these basins to meet municipal and industrial (M&I) and agricultural irrigation needs and the resulting recharge to the basin is further concentrating salts. These factors have caused watershed impairments, leading to development of total maximum daily loads (TMDLs) for numerous constituents for Calleguas Creek and its tributaries.

Similar to many agencies throughout California, Calleguas Municipal Water District (Calleguas) and its purveyors are largely dependent on imported water sources, despite the availability of local groundwater. Unfortunately, this local groundwater is not readily usable due to water quality concerns, primarily TDS and other salts. TDS levels are at or exceed 1,000 milligrams per liter (mg/l) in the groundwater. The only feasible way to remove these constituents is through a membrane treatment process, such as reverse osmosis (RO), which produces a concentrate by-product that must then be managed and disposed.

In order to address increasing salinity levels and water supply issues in the Calleguas Creek Watershed, Calleguas, working with other agencies and stakeholders through the Calleguas Creek Watershed Management Plan (CCWMP) process, initiated implementation of the SMP. The purpose of the SMP is to allow management of both highly treated municipal wastewater and saline groundwater, thereby facilitating more effective use of local water

resources. Specifically, the SMP will be capable of facilitating up to 45,000 acre-feet per year (AFY) of desalted groundwater for M&I and agricultural use, reducing the need to import water to the region.

When the desalted brackish groundwater is produced, salts will be exported in the SMP which will reduce overall salinity levels in the watershed, and will facilitate implementation of several TMDLs. In addition, to the increase in local potable water supply, the flows in the SMP may provide for beneficial reuse in wetlands restoration, agricultural irrigation, and game preserves.

The SMP consists of a pipeline system to collect highly treated wastewater (in excess of local demand for recycled water) and concentrates from municipal wastewater treatment plants, groundwater treatment facilities (both municipal and agricultural), and various industrial operations located within the Calleguas Creek Watershed. The SMP will convey the effluent to other areas for direct use (e.g., suitable agricultural uses and wetland applications) or an ocean outfall for discharge. Operation of the SMP will substantially reduce the amount of salts released into the Calleguas Creek Watershed, and over time, the SMP will reduce salt concentrations in surface waters and groundwaters within the watershed. In addition, the SMP will enable the development of local brackish groundwater resources for potable and agricultural uses.

The alignment of the pipeline system may ultimately extend approximately 32 miles from its furthest upstream receiving point in the City of Simi Valley to its downstream terminus near the City of Port Hueneme. The pipeline will pass through the cities of Simi Valley, Moorpark, Camarillo, Oxnard, and Port Hueneme, and portions of unincorporated Ventura County. Along its route, the SMP will receive discharges of tertiary treated effluent from several wastewater treatment plants (WWTPs), and concentrates from several desalters. Several of the anticipated desalters that are a part of the Watersheds Coalition of Ventura County's (WCVC's) Integrated Regional Water Management (IRWM) Plan and this Proposition 84 grant proposal include the



Camrosa Round Mountain Desalter (C-13) and CamSan/Camrosa Recycled Water Interconnection (C-15).

Future phases will continue to extend the SMP up through the Calleguas Creek Watershed, roughly paralleling Calleguas Creek, to enable additional facilities to connect to the SMP for discharge. The phases of the SMP and their status are shown in Figure 4.

Funding is being sought for Phase 2A of the SMP. Phase 2A will consist of approximately 12,000 linear feet of 30-inch-diameter pipe that will extend the SMP further into the Calleguas Creek Watershed. It will connect to the upstream end of the previously constructed SMP Phase 1D, which terminates just north of the Camrosa Water Reclamation Facility's access road. From this point, the pipeline alignment will run in the now-abandoned Old Lewis Road parallel to Calleguas Creek, to its end near the bridge, then, run in easements adjacent to (new) Lewis Road, north and eastward across several agricultural properties. The upstream terminus of Phase 2A will be located at approximately Cawelti Road to connect to the CamSan/Camrosa Recycled Water Interconnection (RW Interconnection).

## Goals and Objectives

The overall goals and objectives of the SMP are summarized as follows:

- Water Supply Improvement:
  - To improve the region's water reliability.
  - To enable Southern Ventura County water agencies to develop new local water from existing poor quality groundwater.
  - To expand distribution of recycled water for irrigation, offsetting the need for municipal supplies.
- Water Quality Protection:
  - To protect resources for municipal, agricultural, and environmental use.
  - To safely remove salts from the Watershed to the ocean where they cause no harm.
  - To help local communities meet water quality standards for Calleguas Creek

and its tributaries, avoiding costly fines by enforcement agencies.

- Sustainable Environmental Management:
  - To improve the quality of flows into creeks.
  - To reduce greenhouse gas emissions by using local water resources instead of imported sources.
  - To reduce dependence on imported State Water Project (SWP) water from sensitive Delta ecosystem in Northern California.

Phase 2A will expand the reach of these goals and objectives by extending the SMP upstream from its current termination point, further into the Calleguas Creek Watershed, allowing the SMP to be utilized by additional dischargers and enabling future reaches to be constructed for additional dischargers even further upstream.

## Purpose and Need

The purpose of the Calleguas Regional SMP is to provide a regional pipeline that will collect salty water generated by groundwater desalting facilities and excess recycled water and convey that water for reuse elsewhere. Any unused salty water will be safely discharged to the ocean, where natural salt levels are much higher.

As noted above, assuring a reliable water supply while avoiding degradation or improving water quality in the Watershed poses a significant challenge in this region. Over many years, salt has accumulated in the basin through agricultural and municipal use. In addition, highly treated wastewater is too saline to discharge to the creeks and rivers. As a result, salts TMDLs for Calleguas Creek and its tributaries have been adopted.

Ventura County has abundant sources of groundwater that could potentially resolve the supply issue, but much of the water is too high in salts to allow direct municipal and agricultural use without treatment. Although the salt can be removed through RO, desalters have not been built, primarily because there has been no cost-effective means of disposing of the

concentrated salt stream produced by the treatment process.

The SWP supplies that are currently used have become increasingly vulnerable to drought, catastrophic levee failures from flood and/or seismic events, and regulatory shut downs of pumping facilities to protect endangered species. Although various modifications to the Delta/SWP are under consideration, no immediate solution appears likely.

The SMP will address these water quality and supply constraints simultaneously – it will provide a concentrate disposal solution, making it possible for desalters to be built; it will facilitate transfer of recycled water from areas with abundant supplies to areas where it can be beneficially reused; and it will offset a portion of demand for imported water, potentially averting future supply disruptions and associated impacts. Overall, the SMP will facilitate development of up to 45,000 AFY of new, local water supplies.

In particular, Phase 2A of the SMP is needed to continue to extend the SMP further inland. With this expansion, the project will be addressing the same water supply and salinity issues identified above across a larger area. This phase will also facilitate construction of future reaches (Phases 2B, 2C, and beyond) to reach additional upstream dischargers.

The need for the project is well-documented in prior regional studies and plans, including the Calleguas Creek Watershed Management Plan, the IRWMP, and the Fox Canyon Groundwater Management Agency Groundwater Management Plan.

## **Integrated Elements of Projects**

Along with the other projects in the Calleguas Creek Watershed, SMP Phase 2A furthers a comprehensive integrated watershed approach, with common objectives, focusing on reducing dependence on imported water supply and addressing TMDLs for salts and other constituents.

The SMP is a cornerstone project integral to the construction of a series of brackish groundwater desalters, but also necessary for overall salt management in the watershed. The SMP will

provide concentrate disposal for the Camrosa Round Mountain Desalter (C-13), as well as many other desalters described in the IRWMP. These projects cannot be implemented without the SMP, as the SMP provides the sole mechanism for concentrate disposal in the watershed. Therefore, there is a strong linkage between the SMP and the various desalter projects during both implementation and operation.

In addition, the SMP is directly linked to the CamSan/Camrosa RW Interconnection (C-15). This project will enable CamSan to transfer tertiary treated effluent to Camrosa for delivery as recycled water. However, when there is insufficient demand for recycled water, such as during rainy periods, the RW Interconnection will enable the effluent to be discharged to the SMP and ultimately through the Hueneme Outfall, reducing salts loading into the Calleguas Creek Watershed.

Additionally, the United Water Conservation District Seawater Barrier Pilot Well (SC-9) is planning to utilize the SMP for discharge of its backwash water.

Finally, the SMP and VCWWD No. 16 Piru Treatment Plant Tertiary Upgrade (SC-10) share similar goals of improving local supply reliability through increased use of currently non-potable water supplies and meeting RWQCB mandates for addressing salts in the watersheds.

## **Completed Work**

As shown on Figure 4, Calleguas has nearly completed the entirety of Phase 1 of the SMP. The sole remaining phase (1E) is under construction with completion scheduled for fall 2011, about the same time that construction of Phase 2A begins.

For Phase 2A, work completed to date includes preparation of a Preliminary Design Report (see Existing Data and Studies and Task 6 below) and preparation and certification of an Initial Study/Mitigated Negative Declaration (see Existing Data and Studies and Task 7 below). Acquisition of right-of way and permits is in progress and scheduled for completion in spring 2011. Detailed design is also in progress, with 60 percent plans and

specifications completed and included with this Proposal.

By the assumed grant start date (1 June 2011), it is anticipated that design, right-of-way (ROW) acquisition, and permitting will be completed and the project will be ready for bidding and construction.

## **Existing Data and Studies**

Relevant data and studies include the following documents, all of which are available upon request:

- *Regional Brine Lines, Sizing and Alignment Study*. August 1999. Perliter & Ingalsbe.
- *Salinity Management Pipeline, Phase 2A/2B/2C (Spec No. 470), Preliminary Design Report*. April 2007. Black & Veatch. (See Task 6 below for description.)
- *Calleguas Municipal Water District Salinity Management Pipeline Phase 2 (Lower Reach) Pipeline Alignment Revision Initial Study/Mitigated Negative Declaration*. 19 December 2009. Padre Associates, Inc. (See Task 7 below for description.)
- *Salinity Management Pipeline, Phase 2A (Specification No. 470), 60% Plans and Specifications*. December 2010. Perliter & Ingalsbe.

These documents establish the feasibility of the SMP Phase 2A, evaluate potential alignments, address potential construction and operational challenges, and provide estimated schedule and budget information. The plans and specifications, found in Exhibit 3-2 (Att3\_IG1\_WorkPlan\_3of5.pdf on BMS), are at approximately 60 percent completion and show the intended alignment, basic plan and profile for the pipeline, and some design details.

## **Project Map**

Figure 4 shows the full extent of the SMP and the location of the Phase 2A alignment described in this Work Plan.

## **Project Timing and Phasing**

Phase 1 of the SMP is nearly completed; it runs from the Camrosa Water Reclamation Facility

to the discharge point at the Hueneme Outfall. Once Phase 1 of the SMP is complete (anticipated fall 2011), the line will be fully operational and the first dischargers will be able to utilize it.

Phase 2A will build on Phase 1 by extending the SMP upstream from its current termination point at the Camrosa Water Reclamation Facility further into the Calleguas Creek Watershed. This will allow the SMP to be utilized by additional dischargers and enable future reaches (Phases 2B, 2C, and beyond) to be constructed for additional dischargers even further upstream. Phase 2A is planned for completion by fall 2012.

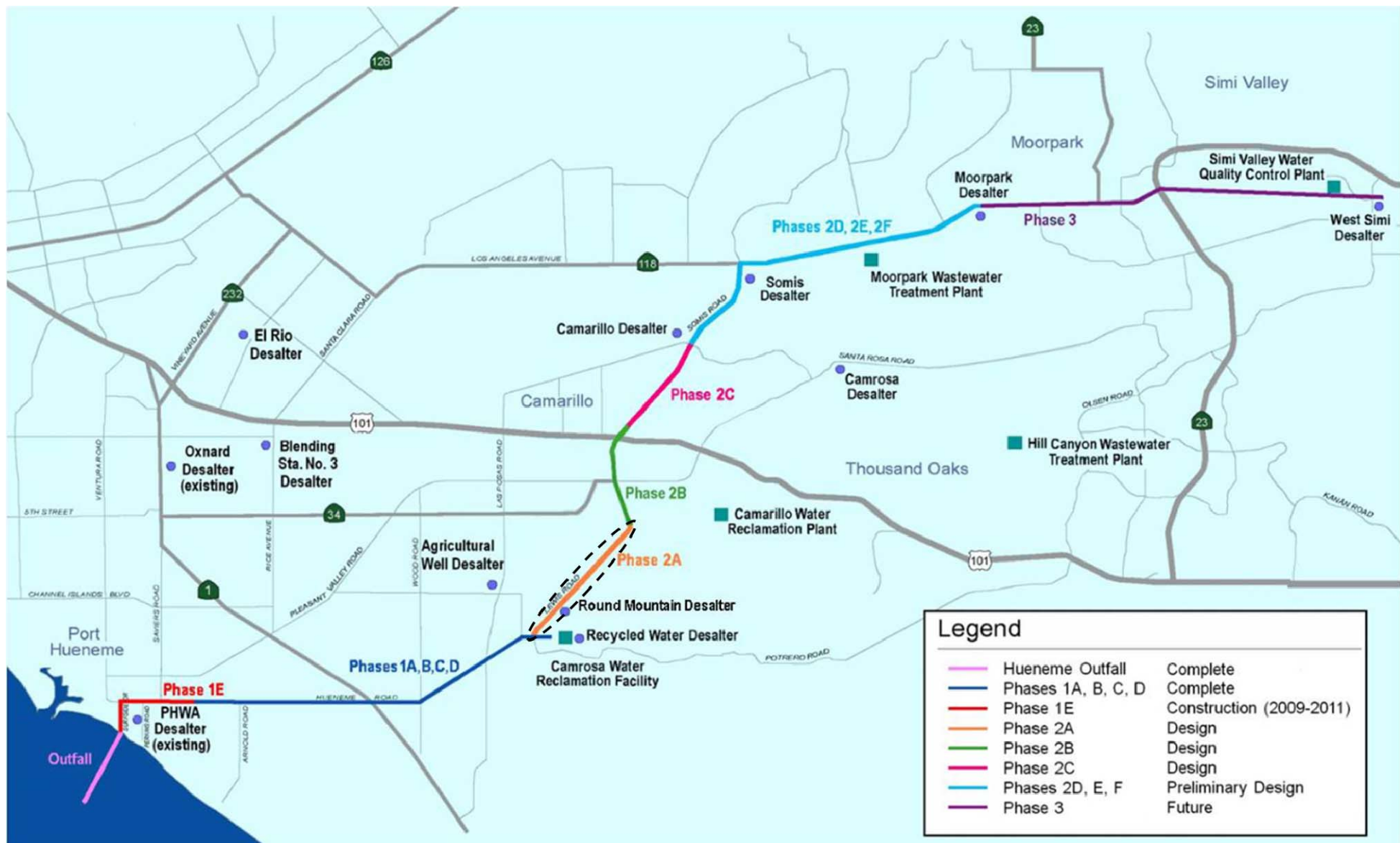


Figure 4: Project Map and Completion Status

## II. Work Plan

Tasks necessary to construct the Calleguas SMP Phase 2A are described in Table 3.

Table 1: Work Plan for Calleguas Regional SMP Phase 2A

<b>Budget Category (a): Direct Project Administration Costs</b>
<p>Task 1: Administration</p> <p>Description: Prepare and submit invoices.</p> <p>Deliverables: Invoices.</p>
<p>Task 2: Labor Compliance Program</p> <p>Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b).</p> <p>Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.</p>
<p>Task 3: Reporting</p> <p>Description: Prepare quarterly and final reports as specified in the Grant Agreement.</p> <p>Deliverables: Quarterly and final reports as specified in the Grant Agreement.</p>
<p>Task 4: Assessment and Evaluation</p> <p>SMP Phase 2A is part of the overall SMP. Due to grant funding already awarded to Calleguas for various previous phases of the SMP, a Project Assessment and Evaluation Plan, Monitoring Plan, and Quality Assurance Project Plan (QAPP) have already been completed and submitted to the RWQCB and/or SWRCB. These documents will be revised, if necessary and appropriate.</p> <p>Deliverables: Revised Monitoring Plan and QAPP, as appropriate.</p>
<b>Budget Category (b): Land Purchase/Easement</b>
<p>Task 5: Right-of-Way Acquisition</p> <p>Calleguas is currently in the process of acquiring easements for the pipeline from a series of private landowners along the desired alignment. Legal descriptions for the easements have been prepared and the necessary easements are being formally requested from the landowners.</p> <p>Deliverables: Easement documents (to be provided as part of the final Specifications).</p>

<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
<p>Task 6: Preliminary Design</p> <p>The Preliminary Design Report has been completed and included the following topics:</p> <ul style="list-style-type: none"> <li>• Geotechnical Issues</li> <li>• Pipeline Alignment</li> <li>• Pipeline Material</li> <li>• System Hydraulics</li> <li>• Crossing and Potential Interfering Utilities</li> <li>• Traffic Control Issues</li> <li>• Trenchless installation Methods for Channel and Other Crossings</li> <li>• Appurtenances, including access manholes, blow offs, and air release/vacuum valves</li> <li>• Environmental Permitting and Regulations</li> <li>• Implementation Schedule</li> <li>• Preliminary Cost Opinion</li> </ul> <p>Deliverables: Completed Preliminary Design Report.</p>
<p>Task 7: CEQA Documentation</p> <p>Description: Calleguas has prepared the Final Initial Study/Mitigated Negative Declaration, and the Calleguas Board of Directors has certified the document.</p> <p>Deliverables: Certified Final Initial Study/Mitigated Negative Declaration.</p>
<p>Task 8: Design</p> <p>Description: The design engineer will prepare plans and specifications to construct SMP Phase 2A. Plans and specifications will be prepared at the 60 percent, 90 percent, and 100 percent design completion levels. At each stage of completion, Calleguas staff and outside technical experts will provide technical review and QA/QC of the plans and specifications.</p> <p>Deliverables: Final Plans and Specifications for bidding.</p>
<p>Task 9: Permitting</p> <p>Description: The following permits will be obtained prior to the start of construction:</p> <ul style="list-style-type: none"> <li>• County of Ventura Transportation Department: Encroachment Permit</li> <li>• Ventura County Watershed Protection District: Encroachment Permit</li> <li>• SWRCB: Coverage under General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities</li> <li>• RWQCB: Coverage under General Permit for Discharges of Groundwater from Construction Dewatering to Surface Waters</li> <li>• RWQCB: Coverage under General Permit for Discharges of Low Threat Hydrostatic Test Water to Surface Waters.</li> </ul> <p>Deliverables: Copies of permits (to be provided as part of the Final Specifications).</p>

<b>Budget Category (d): Construction/Implementation</b>
<p>Task 10: Construction Contracting</p> <p>Description: Once design is completed, right-of-way is acquired, and all permits are procured, SMP Phase 2A will be advertised for bidding through standard Calleguas procedures. Calleguas will hold a pre-bid meeting and respond to questions from contractors, open and review bids for completeness and to determine whether the contractor meets the experience requirements, and award the project to the responsible bidder with the lowest bid in accordance with the Public Contract Code.</p> <p>Deliverables: Notice of Award issued to Contractor.</p>
<p>Task 11: Construction</p> <p>Description: Once the project has been bid and awarded, the contractor will construct SMP Phase 2A in accordance with the final plans and specifications.</p> <p>Deliverables: Record drawings, construction photos.</p>
<b>Budget Category (e): Environmental Compliance/Mitigation/Enhancement</b>
<p>Task 12: Environmental Compliance/Mitigation/Enhancement</p> <p>Description: During construction, Calleguas staff and/or qualified engineering consultants will provide environmental compliance services, which may include, but are not limited to, sampling and analysis of stormwater, dewatering water, and hydrostatic test water discharges; specialized archaeological/cultural resource inspection, oversight, and analysis; biological surveys; and compliance reporting for these and other environmental issues.</p> <p>Deliverables: None.</p>
<b>Budget Category (f): Construction Administration</b>
<p>Task 13: Construction Administration</p> <p>Description: During construction, Calleguas staff and/or qualified engineering consultants will provide construction management and administration, including daily on-site observation; inspection of pipe material and fabrication processes at the factory; testing of materials used for construction, including soils and concrete; and documentation of these activities.</p> <p>Deliverables: Same as for Task 11, Construction.</p>



### III. Other Required Information

#### Procedures

Calleguas will continue to coordinate with future dischargers to the SMP through the CCWMP process, monthly purveyor meetings, and additional meetings, as needed.

#### Standards

The SMP Phase 2A will be designed and constructed in accordance with the appropriate standards, including those from ASTM, American Waterworks Association (AWWA), and other construction industry entities, and appropriate sections of the Health and Safety Code.

#### Development of Monitoring Plan and Quality Assurance Project Plan

Due to grant funding already awarded to Calleguas for various previous phases of the SMP, a Project Assessment and Evaluation Plan, Monitoring Plan, and Quality Assurance Project Plan (QAPP) have already been completed and submitted to the RWQCB and/or SWRCB. The Monitoring Plan and QAPP may be revised and resubmitted, as appropriate.

#### Status of Acquisition of Land or ROWs

Calleguas is currently in the process of acquiring easements for the pipeline from a series of private landowners along a portion of the desired alignment. Legal descriptions for the easements have been prepared and the necessary easements are being formally requested from the landowners. The remainder of the alignment is in the public ROW.

#### Building Materials, Project Design Status, and Bid Solicitation Efforts

Building materials to be used will be in accordance with ASTM, AWWA, and construction industry standards, and consistent with the materials used on previous phases of the SMP. The project is currently in design. Bids will be solicited once final design is completed.

#### Permits

As discussed for Task 9, the following permits are required prior to constructing SMP Phase 2A. The application process for these permits is in progress:

- County of Ventura Transportation Department: Encroachment Permit
- Ventura County Watershed Protection District: Encroachment Permit
- SWRCB: Coverage under General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities
- RWQCB: Coverage under General Permit for Discharges of Groundwater from Construction Dewatering to Surface Waters
- RWQCB: Coverage under General Permit for Discharges of Low Threat Hydrostatic Test Water to Surface Waters

#### Status of Preparation and Completion of Environmental Requirements

The CEQA document is completed and has been adopted by Calleguas as the lead agency.

#### Work Items to Complete GWMP

Most of the SMP, including Phase 2A, is located in a groundwater basin managed by the Fox Canyon Groundwater Management Agency (FCGMA). The Fox Canyon Groundwater Management Plan was adopted by the FCGMA in May 2007 and is available in Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf on BMS).

#### Submittals to Granting Agency

Status reports, in the form requested by the granting agency, will be submitted on a quarterly basis. A final report will also be prepared once the project is completed. Other items required by the grant contract will also be submitted to the granting agency.

#### Design Plans and Specifications

Plans and specifications are currently being prepared by the design engineer. The 60 percent plans and specifications were

available at the time of submittal of this application and are provided as Exhibit 3-2 (Att3\_IG1\_WorkPlan\_3of5.pdf on BMS).



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Camrosa Round Mountain Desalter

### Camrosa Water District

Contact: Tamara Sexton  
(805) 482-8214

[ts Sexton@camrosa.com](mailto:ts Sexton@camrosa.com)

### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

### CALFED

#### Primary Objectives

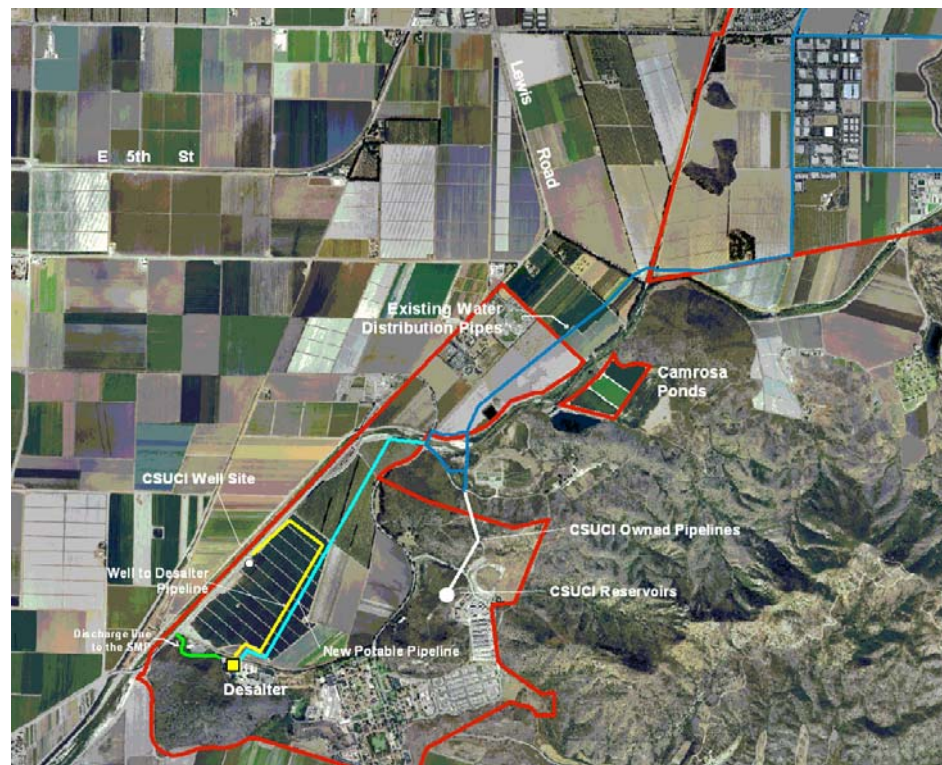
- ☒ Ecosystem quality
- ☒ Water supply
- ☒ Water quality
- ☐ Levee system integrity

### Project Description

Camrosa Water District (Camrosa) plans to construct the Round Mountain Desalter to treat local brackish groundwater using reverse osmosis (RO) technology. This will provide a new source of potable water for Camrosa, improving local supply reliability and allowing them to reduce purchases of water imported from the State Water Project (SWP) by approximately 10 percent. By removing salts from groundwater, the project will also effectively remove salts from the Calleguas Creek Watershed (watershed).

Groundwater to be treated at the Round Mountain Desalter will be pumped from an existing well on California State University Channel Islands (CSUCI) property in Camarillo. The plant itself will be constructed on land owned by Camrosa, off South Lewis Road near the CSUCI campus. The Round Mountain Desalter will desalt 1 million gallons per day (mgd) of brackish groundwater that would otherwise not be suitable for municipal water use, and will produce about 1,000 acre-feet per year (AFY) of potable water. The high-quality potable water produced by the desalter will support anticipated growth of the CSUCI campus and will also provide a secondary local water supply in the event of an emergency.

Treatment of 1 mgd of brackish water will export up to 3,000 tons of salt per year from the Watershed. The concentrate produced as a by-product of the RO process will be discharged to the Salinity Management Pipeline (SMP) that is under construction by the Calleguas Municipal Water District (Calleguas). The SMP, a phase of which is also a project within this Proposal, is critical to the Camrosa Round Mountain Desalter because the SMP will carry the concentrate to an ocean outfall for discharge, or to recycled water users for beneficial reuse. The desalter will be amongst the first brackish groundwater treatment facilities in the watershed to discharge into the SMP.



Project Map



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Camrosa Round Mountain Desalter

### Watershed Coalition of Ventura County Primary Objectives

- ☒ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☒ Protect and restore habitat and ecosystems in our watersheds
- ☐ Provide water-related public access, recreational, and educational opportunities

### Project Benefits

Round Mountain Desalter will benefit Camrosa, their customers, and the Watershed in a number of ways. Specifically, the project will:

- **Water Supply for Growth:** Partially meet the demand associated with growth of the CSUCI campus from approximately 2,500 to 15,000 full-time-equivalent students over the next 10 years.
- **Emergency Water Supply:** Provide a backup water supply for the CSUCI campus, which currently has no redundancy in the event of a system disruption because there is only one pipeline serving the campus.
- **Water Supply Reliability:** Reduce Camrosa's dependence on water imported from the fragile Delta system, where water deliveries could be disrupted due to drought, catastrophic levee failure, requirements to protect endangered species, or other allocation limits.
- **Salt Management:** Avoid accumulation of 600 tons of salt per year that would have been associated with the imported SWP water that will not be needed.
- **Water Quality:** Facilitate improvement of groundwater quality over time as naturally occurring recharge replaces the lower quality groundwater that was removed for treatment.
- **Climate Change:** Compared to the energy requirements for importing water from the SMP, only about one-third as much energy is needed for pumping, RO treatment, and distribution of local water supplies; this will reduce greenhouse gas generation.

### Cost and Schedule

Grant funding requested under Proposition 84 for design and construction of the Round Mountain Desalter is \$2.3 million. An additional \$2.57 million will be obtained from other local funding sources to provide the estimated total cost of \$4.87 million.

Rehabilitation of the designated well has been completed. Design for the Round Mountain Desalter is expected to be completed in late fall 2011. Construction is scheduled to begin in winter 2011, and should be completed during winter 2012.



## I. **Camrosa Round Mountain Desalter**

### **Project Description**

Camrosa Water District's (Camrosa's) plans to construct the Round Mountain Desalter to develop a new source of potable water. The desalter will use reverse osmosis (RO) technology to desalt 1 million gallons per day (mgd) of brackish groundwater that would otherwise not be suitable for municipal use, producing about 1,000 acre-feet per year (AFY) of potable water. This new water supply will reduce demand for water from the State Water Project (SWP), improve local water supply reliability, and effectively remove salts from the Calleguas Creek Watershed (Watershed).

Camrosa currently purchases approximately 10,000 AFY of SWP water imported from the Metropolitan Water District of Southern California who obtains it from the Calleguas Municipal Water District (Calleguas). Substituting water produced at the Round Mountain Desalter, Camrosa will be able to reduce their purchases of imported water by approximately 10 percent.

Water to be treated at the Round Mountain Desalter will be pumped from an existing well on California State University Channel Islands (CSUCI) property. Use of the well will be in accordance with a 30-year renewable lease from CSUCI. The well is part of an abandoned wellfield that taps a perched aquifer near the base of the Conejo Hills (Figure 5). This aquifer is not within a defined Department of Water Resources (DWR) groundwater basin, and is relatively isolated from the Lower Aquifer System of the Oxnard Plain (Brown 2005).

The State of California previously operated the wellfield to serve Camarillo State Hospital, but after drinking water standards became more stringent in 1979, groundwater quality was no longer acceptable, and the wellfield was abandoned in favor of imported SWP water. Previous yield in some wells near this location was up to 1,000 gallons per minute (gpm).

The plant itself will be constructed on land owned by Camrosa, off South Lewis Road near the CSUCI campus. The pipelines from the well to the desalter and the potable distribution system will traverse private land along easements granted by the landowners. The well is locally referred to as the University Well because of its location on the CSUCI campus.

The high-quality potable water produced by the Round Mountain Desalter is needed to support growth of the CSUCI campus and to provide a secondary local water supply in the event of an emergency. The CSUCI campus is at the end of a single water transmission pipeline that renders the campus vulnerable to water service interruptions. Surplus water not used by CSUCI will be delivered to other customers within Camrosa's service area.

At design capacity, treatment of 1 mgd of brackish water will extract up to 3,000 tons of salt per year from the Watershed. The concentrate produced as a by-product of the RO process will be discharged to the Salinity Management Pipeline (SMP) operated by Calleguas. Portions of the SMP are still under development, including Phase 2A, which is project C-14 of this Proposal; however, the desalter will discharge to the existing SMP alignment. The SMP will convey the concentrate to an ocean outfall for safe discharge, or to recycled water users for beneficial reuse.

### **Goals and Objectives**

Camrosa's primary goals for the project are to reclaim an abandoned, unconfined brackish groundwater resource that is otherwise unusable, thus providing local potable water to CSUCI and other Camrosa customers. This will reduce the community's dependence on imported SWP water, thereby improving local water supply reliability.

An additional objective is to improve perched aquifer water quality by extracting brackish groundwater and associated salt, and allowing natural recharge with fresh water (e.g., rainfall infiltration) to occur over time.

Considering the communication between groundwater and surface water in the



watershed, groundwater treatment and the export of extracted salts through the SMP will have a positive impact on creek water quality over time. This will contribute to achieving a more sustainable salts balance in the watershed.

## **Purpose and Need**

Camrosa currently relies on SWP water to meet roughly two-thirds of its potable water demand. The balance is obtained from local groundwater supplies. Aquifers with higher quality groundwater do exist in the Camrosa area; however, they are already being pumped at, near or beyond their practical sustainable yield. Therefore, to meet the objective of increasing local supplies, desalting of local groundwater is the only feasible option for additional potable supply.

The need for greater local supplies is driven by the continuing vulnerability of the Delta (and therefore, the SWP) to multiple threats that include drought, catastrophic levee failure, and reduced water transfers to protect endangered species.

Further, the use of SWP water over time has led to the import and accumulation of salts in the watershed, which, in combination with salt contributions from agricultural activities, has adversely affected water quality. Within the Camrosa service area, 11 of 14 reaches of Calleguas Creek were identified on the 2002 Clean Water Act Section 303(d) list of water quality-limited segments due to salt concentrations [boron, chloride, sulfate, or total dissolved solids (TDS)] that exceeded water quality standards. As a result, Calleguas Creek was designated an Impaired Water Body, and Total Maximum Daily Loads (TMDLs) were established to better manage salt inputs.

The Round Mountain Desalter will help to accomplish a more immediate decrease in salt concentrations in the watershed. Specifically, this would be attributable to the combination of groundwater treatment and reduced accumulation from SWP water. Avoiding use of 1 mgd of SWP water will prevent accumulation of 600 tons of salt per year in the Watershed. This salt decrease and the resulting improvement in water quality will be a benefit for fish and wildlife in the Calleguas Creek Watershed.

The need for the project was previously identified under the Renewable Water Resource Management Program (RWRMP) for the Southern Reaches of the Calleguas Creek Watershed. This program was developed under a cooperative agreement between Camrosa, Camarillo Sanitary District (CamSan), and the City of Thousand Oaks, with the goal of improving management of water resources in the lower Calleguas Creek Watershed.

The focus of the RWRMP, is to increase recycled/reclaimed water use, reduce salt inputs to surface waters, and construct facilities to transport salts out of the Watershed. Overall, the RWRMP is an effort to achieve a salt balance on the Watershed and reduce demands on imported water and Fox Canyon groundwater.

Reducing the amount of SWP water imported will also reduce overall energy consumption and associated greenhouse gas production. Even considering the energy-intensive RO treatment, the total energy needed to pump, treat, and distribute local water supplies is estimated to be roughly one-third the energy required to import the same amount of water from the SWP, as calculated by Calleguas and presented in an internal memorandum dated 25 January 2007.

Over the next 10 years, CSUCI is expected to grow from approximately 2,500 to 15,000 full-time-equivalent students. In addition to expanding the academic campus, CSUCI plans to construct on-campus housing and a large research and development park. This development will require potable water, and the desalter is a first step in meeting that demand with local supplies.

CSUCI is located in a semi-remote area where water is supplied through a single, 3-mile alignment of 12-inch water line with two creek crossings. Considering the pipeline length and lack of redundancy, the potable water supply to CSUCI is vulnerable in the event of an earthquake or other emergency. The desalter will provide a valuable alternative supply to CSUCI.

## **Integrated Elements of Projects**

The Round Mountain Desalter will be amongst the first facilities in the Calleguas Creek Watershed to discharge concentrate from the



RO process into the Calleguas SMP, a phase of which is included in this Proposal. The SMP alignment that will receive the concentrate from the desalter has already been completed, and will allow safe disposal at the SMP's ocean outfall or an alternative reuse, as available, thus integrating the desalter and SMP project. The Round Mountain Desalter is one of several facilities planned for brackish groundwater desalting and salts management in the Watershed, all of which are feasible only in conjunction with the SMP.

As noted above, the Round Mountain Desalter, along with the CamSan/Camrosa Recycled Water Interconnection (C-15) that is also presented in this Proposal, are components of Phase 1 of the RWRMP for the Southern Reaches of the Calleguas Creek Watershed. The Round Mountain Desalter, the SMP and the Recycled Water Interconnection are integrated in that, together, they remove salts out of the Calleguas Creek Watershed and provided additional local water supplies.

### Completed Work

Pursuant to the requirements of the California Environmental Quality Act (CEQA), Camrosa prepared a draft Initial Study (IS) and Negative Declaration (ND) for the Round Mountain Desalter for review and comment by the public and responsible and trustee agencies. The draft IS/ND was also filed with the Ventura County Clerk/Recorder's Office and the State Clearinghouse. Comments received during the review period were considered, and Camrosa concluded that there were no potential significant environmental effects. The Camrosa Board of Directors adopted the ND on 12 May 2010. The IS/ND builds on the Program EIR for the RWRMP for the Southern Reaches of the Calleguas Creek Watershed (Padre Associates 2006).

Preliminary aquifer yield and water quality tests have been performed by Camrosa. The perched aquifer continues to respond to pumping yield tests in accordance with expectations based on historical pumping records. Water quality analyses were also consistent with historical records, indicating that TDS levels remain high, at about 1,800 mg/l. In addition, the University Well has been rehabilitated (see Figure 5).

The prior work also included installing a temporary connection from the well to Camrosa's non-potable distribution system; this temporary pipeline will later be replaced by the supply line to the desalter. The preliminary design for the Desalter is underway, estimated at 5 percent completion.

### Existing Data and Studies

The following studies have been prepared and are available upon request.

- *Negative Declaration for the California State University Channel Island Wellwater Desalter Project (State Clearing House Number 2010031068)*. 2010. Camrosa Water District.  
[http://www.camrosa.com/documents/wellwater\\_desalter.pdf](http://www.camrosa.com/documents/wellwater_desalter.pdf)
- *Shallow Groundwater of Eastern Pleasant Valley Basin*. 2005. N. Brown.
- *University Well Analysis*. August and September, 2010. Fruit Growers' Laboratory (FGL).
- *Final Program Environmental Impact Report, Environmental Assessment for the Renewable Water Resource Management Program for the Southern Reaches of the Calleguas Creek Watershed (RWRMP)*. 6 December 2006. Padre Associates, Inc. (State Clearinghouse Number 2004061159).  
[http://www.camrosa.com/documents/final%20eir\\_oct06.pdf](http://www.camrosa.com/documents/final%20eir_oct06.pdf)
- *Groundwater Geology and Yield Analysis of the Tierra Rejada Basin*. 4 December 2009. N. Brown.  
[http://www.camrosa.com/board\\_agendas/1-6-10/bm2-basin-yield-study-w-attach.pdf](http://www.camrosa.com/board_agendas/1-6-10/bm2-basin-yield-study-w-attach.pdf)
- *CO<sub>2</sub> Emissions and State Project Water to Ventura County*. 25 January 2007. Calleguas General Manager.

### Project Map

Figure 5 shows the location of the Round Mountain Desalter, the University Well, and the alignment of pipelines.

## Project Timing and Phasing

Camrosa has already completed rehabilitating the University Well and provided a temporary connection to the non-potable distribution system.

Camrosa has contracted with an engineering firm that has begun the layout for the Round Mountain Desalter. The design is expected to be complete in late fall 2011. Construction is scheduled to begin in winter 2011, and should be completed during winter 2012.

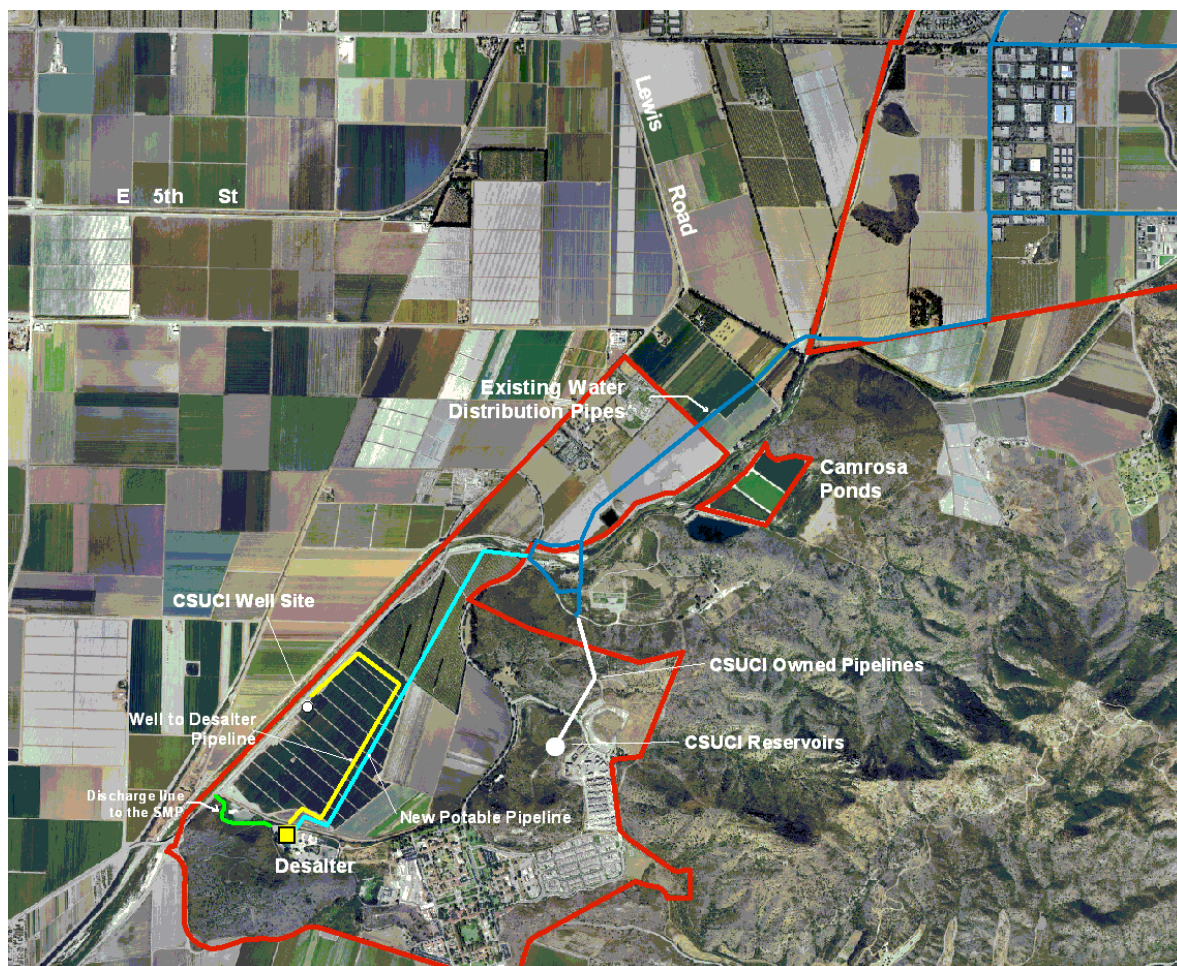


Figure 5: Round Mountain Desalter Location

## II. Work Plan

Tasks necessary to construct the Round Mountain Desalter are described in Table 4.

Table 4: Work Plan for Camrosa Round Mountain Desalter

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration Description: Prepare and submit invoices. Deliverables: Invoices.
Task 2: Labor Compliance Program Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b). Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.
Task 3: Reporting Description: Prepare quarterly and final reports as specified in the Grant Agreement. Deliverables: Quarterly and final reports as specified in the Grant Agreement.
Task 4: Assessment and Evaluation Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. This will draw upon an aquifer yield study that was completed to evaluate water supply and quality, relative to the requirements for the desalter. It will be supplemented by groundwater monitoring in accordance with SBX7-6. Reporting will be addressed in Task 3. Deliverables: Monitoring Plan.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 5: Land Purchase/Easement Description: The desalter will be constructed on property owned by Camrosa adjacent to Camrosa's Water Reclamation Facility. Easements have been granted by the owners of agricultural land for pipelines connecting the desalter to both the University Well and the potable distribution system. Deliverables: Easement documents.

**Budget Category (c): Planning/Design/Engineering/Environmental Documentation****Task 6: Design**

Description: Camrosa previously completed a Request for Proposal (RFP) process, and selected a qualified engineering consultant with appropriate experience for design and construction management of the desalter and associated pipelines. That consultant will prepare the contract documents, including plans and specifications.

Deliverables: Final Plans and Specifications.

**Task 7: Environmental Documentation**

Description: Camrosa completed an IS/ND in accordance with CEQA. The ND was certified and adopted by Camrosa's Board of Directors on 21 April 2010. An addendum to the ND will be prepared to assess greenhouse gas (GHG) emissions resulting from construction of the project, in accordance with California Assembly Bill (AB) 32 and Senate Bill (SB) 97.

Deliverables: IS/ND and addendum.

**Task 8: Permitting**

Description: The following permits will be obtained prior to construction:

- California Department of Public Health (CDPH): An updated/amended Water Supply Permit will be obtained to operate the Round Mountain Desalter. Camrosa will prepare a Drinking Water Source Assessment and Protection (DWSAP) report to pursue an amendment to their existing permit.
- State Water Resources Control Board (SWRCB): Coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

Deliverables: Copies of permits.

**Budget Category (d): Construction/Implementation****Task 9: Construction Contracting**

Description: Once the design is complete, the Round Mountain Desalter construction project will be advertised for bidding through standard Camrosa bidding procedures and awarded in accordance with the California Public Contract Code.

Deliverables: Notice of Award issued to contractor.

**Task 10: Construction**

Description: Once the project has been bid and awarded, the selected contractor will construct the Round Mountain Desalter in accordance with the final plans and specifications. During construction, Camrosa staff and/or qualified engineering consultants will provide construction management and administration, including testing and oversight for facility integration into the distribution system.

Deliverables: Record drawings, construction photos.

<b>Budget Category (e): Environmental Compliance/Mitigation/Enhancement</b>
<p>Task 11: Environmental Compliance/Mitigation/Enhancement</p> <p>Description: In response to comments on the ND from the California Department of Fish &amp; Game, Camrosa will ensure that pipeline construction under Long Grade Canyon Creek occurs outside the bird breeding season. Written notice will be provided on jack-and-bore methods for pipeline construction.</p> <p>Deliverables: Biological reviews and written notices, if jack-and-bore methods are used by contractor.</p>
<b>Budget Category (f): Construction Administration</b>
<p>Task 12: Construction Administration</p> <p>Description: Camrosa staff and/or qualified construction management consultants will provide the necessary inspection and oversight, including on-site inspection, material testing, project coordination, and meetings. They will also ensure overall compliance with the contract plans and specifications.</p> <p>Deliverables: Same as Task 10, Construction.</p>



### III. Other Required Information

#### Procedures

Camrosa will coordinate with Calleguas through the CCWMP process and additional meetings, as needed.

#### Standards

Round Mountain Desalter will be designed and constructed in accordance with all applicable standards, including those from ASTM, American Water Works Association (AWWA), American Society of Materials Engineering (ASME), American Public Works Association (APWA), and Camrosa.

#### Development of Monitoring Plan

Camrosa will prepare a Monitoring Plan in accordance with requirements established by DWR's grant agreement and CDPH under the Domestic Water Supply Permit that is currently being updated. Camrosa maintains an Environmental Laboratory Accreditation Program (ELAP) certification and holds a valid Quality Assurance Project Plan (QAPP), if required. Water quality testing that cannot be performed at Camrosa's water quality testing laboratory will be done through an independent state certified testing facility that holds a valid QAPP that will be submitted as required.

#### Status of Acquisition of Land or Right-of-Way

Round Mountain Desalter will be located on Camrosa-owned property. Easements for the pipelines between the desalter and both the supply well and the distribution system have been granted by adjacent landowners.

#### Building Materials, Project Design Status, and Bid Solicitation Efforts

Round Mountain Desalter is currently being designed by an engineering consulting firm experienced in the design and construction of membrane water treatment plant facilities. The plans and specifications will reflect building materials applicable to current seismic and general industry standards for these types of facilities. Bid solicitation is subject to Camrosa Board approval upon completion of the final plans and specifications and acquisition of

applicable approval and updated CDPH Water Supply Permit.

#### Permits

As discussed under Task 8 in the Work Plan, Camrosa is currently in the process of obtaining an updated CDPH Water Supply Permit. The permit update requires preparation of a DWSAP report, as well as continued project design review by CDPH. The DWSAP is expected to be complete at the same time as the 90 percent design review of the Round Mountain Desalter plans and specifications.

Camrosa will also seek coverage under the SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, assuming more than one acre will be affected by construction.

#### Status of Preparation and Completion of Environmental Requirements

As noted above, Camrosa prepared an IS/ND for the Round Mountain Desalter (formerly called the CSUCI Desalter) in accordance with Section 15371 of CEQA, which was filed with the County Clerk/Recorder and State Clearing House on 15 March 2010. Camrosa's Board of Directors adopted the ND on 21 April 2010. An addendum to the ND will be prepared to assess GHG emissions resulting from construction of the project, in accordance with AB 32 and SB 97.

#### Work Items to Complete Groundwater Management Plan

The University Well designated to supply the Round Mountain Desalter is located in a perched aquifer zone in an area outside of any defined DWR groundwater basins. Pursuant to AB 3030, a Groundwater Management Plan (GWMP) is not required for the perched aquifer because it is not a defined DWR groundwater basin. However, Camrosa plans to develop its own groundwater management and monitoring program [similar to SBX7 6, California Statewide Groundwater Elevation Monitoring (CASGEM)] to manage and protect the groundwater resources within the aquifer for itself and local landowners. The plan will present a standard methodology for the collection of sufficient data with adequate quality to facilitate informed decision-making for

best management of the aquifer. These data are expected to include groundwater elevations in adjacent wells, groundwater production rates, and groundwater quality.

### **Submittals to Granting Agency**

Status reports, in the form requested by the granting agency, will be submitted on a quarterly basis. A final report will also be prepared once the project is completed. Other items required by the grant contract will also be submitted to the granting agency.

### **Design Plans and Specifications**

The engineering consultant for the design is under contract with Camrosa and has begun design layout for the Round Mountain Desalter. Upcoming tasks include:

- Preliminary Design Review
- Geotechnical Services
- Surveying
- Outside Agency Coordination/Permits
- Design Reviews
- Final Plans and Specifications
- Bid Services.

Plans and specifications are not yet available for submittal at the time of this Proposal.

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## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Camarillo Sanitary District/Camrosa Water District

### Recycled Water Interconnection

#### Camarillo Sanitary District

Contact: Lucie McGovern  
(805) 388-5334  
[lmcgovern@ci.camarillo.ca.us](mailto:lmcgovern@ci.camarillo.ca.us)

#### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

#### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

#### CALFED

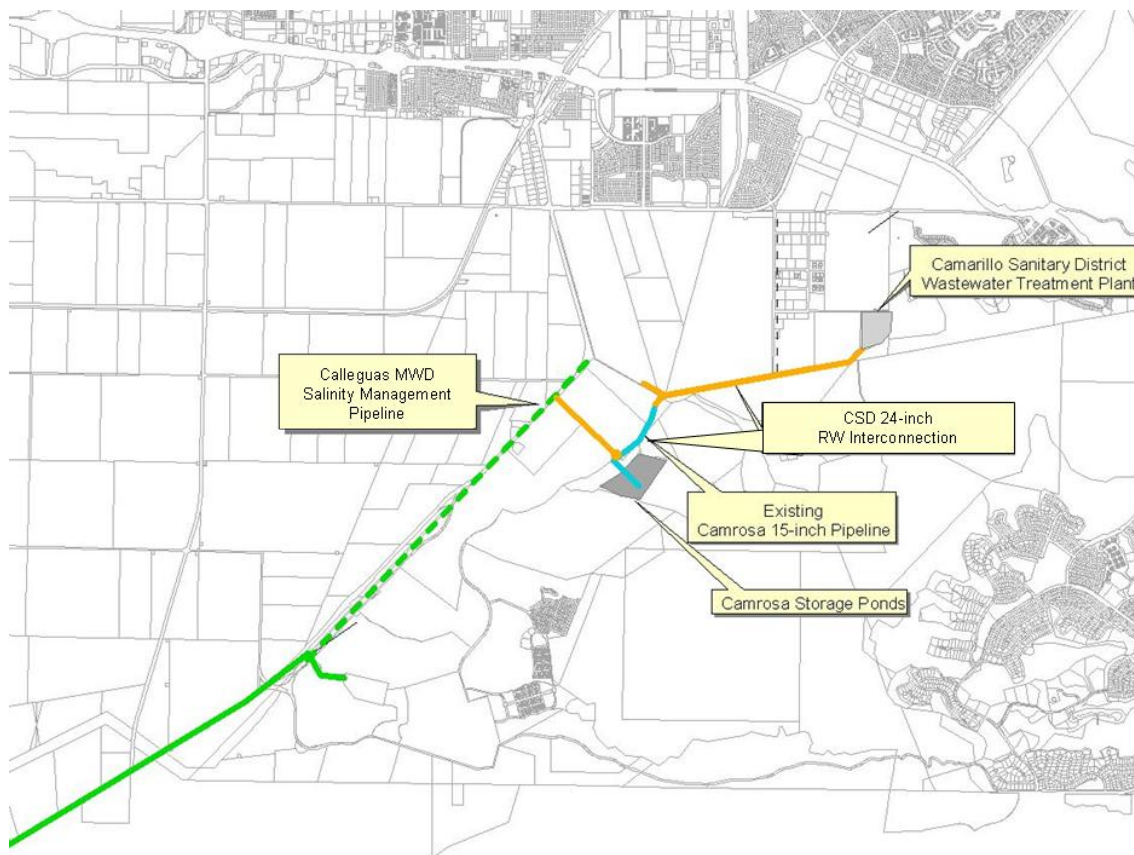
##### Primary Objectives

- ☒ Ecosystem quality
- ☒ Water supply
- ☒ Water quality
- ☐ Levee system integrity

#### Project Description

Camarillo Sanitary District (CamSan) and Camrosa Water District (Camrosa) have partnered to construct the Recycled Water Interconnection, allowing CamSan to more widely distribute recycled water to customers of both purveyors. Implementation involves constructing 9,600 feet of 24-inch pipeline to transfer recycled water from the CamSan water reclamation plant to CamSan customers and the Camrosa non-potable water storage ponds. From the storage ponds, water will be distributed to Camrosa customers for reuse. When the water is not needed for reuse, such as during the wet winter months, it may be discharged to the adjacent Calleguas Municipal Water District Salinity Management Pipeline (SMP).

The CamSan water reclamation facility currently treats almost 4 million gallons per day (mgd) of wastewater and has an ultimate treatment capacity of 6.75 mgd. The recycled water is currently used for limited agricultural irrigation or discharged to Conejo Creek, under a National Pollutant Discharge Elimination System permit. When the interconnection pipeline is completed, all of the recycled water will be delivered to CamSan and Camrosa customers or discharged to the SMP, eliminating the discharge to Conejo Creek. Elimination of this discharge will improve water quality in the creek and other receiving waters, allowing compliance with the Total Maximum Daily Load limits for salt and related constituents in Calleguas Creek. The new pipeline is shown in yellow on the figure below.



Project Location Map



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant Camarillo Sanitary District/Camrosa Water District Recycled Water Interconnection

### Watershed Coalition of Ventura County Primary Objectives

- ☒ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☐ Protect and restore habitat and ecosystems in our watersheds
- ☐ Provide water-related public access, recreational, and educational opportunities

### Project Benefits

The project will have a number of benefits for CamSan, Camrosa and the region, including:

- Increased beneficial reuse of readily available, local recycled water.
- Reduced dependence on imported water from the fragile Delta system via the State Water Project, which is vulnerable to supply disruption.
- Reduced groundwater pumping, allowing local aquifers to replenish naturally with higher quality water providing in-lieu conjunctive use in the aquifer.
- Improved water quality in Conejo Creek and downstream Calleguas Creek due to a decrease in discharges of tertiary treated wastewater with relatively high salinity.
- Greater operational flexibility for CamSan and Camrosa to manage distribution of recycled water.

### Cost and Schedule

Grant funding requested under Proposition 84 for the CamSan/Camrosa Recycled Water Interconnection is \$2.75 million. An additional \$2.75 million will be obtained from other funding sources to meet the total estimated project cost of \$5.5 million.

California Environmental Quality Act documentation for the first 7,300 linear feet (LF) of the project was completed in 2006 as part of a Program Environmental Impact Report (EIR). An update to the EIR will be prepared for the remaining 2,300 LF, including the Calleguas Creek crossing. The design work for the first 7,300 LF has also been completed. The final section of the design for the remaining 2,300 LF will begin in July 2011, and is scheduled for completion by June 2012. Construction is planned to start in January 2013 and continue for 18 months until project completion.





## I. CamSan/Camrosa Recycled Water Interconnection

### Project Description

Camarillo Sanitary District (CamSan) and Camrosa Water District (Camrosa) are jointly planning to undertake construction of a recycled water interconnection that will expand recycled water distribution and eliminate wastewater discharge to the salt-impacted Calleguas Creek. Specifically, the project will entail constructing 9,600 linear feet (LF) of new 24-inch-diameter pipeline to facilitate transfers of tertiary-treated wastewater (recycled water) among the CamSan water reclamation plant, CamSan's recycled water distribution system, the Camrosa non-potable storage ponds and distribution system, and the Calleguas Municipal Water District (Calleguas) Salinity Management Pipeline (SMP) (see Figure 6). Recycled water will only be discharged to the SMP when there is no demand for recycled water, such as during the wet winter months.

CamSan owns and operates a water reclamation plant, adjacent to Conejo Creek. The plant treats about 4 million gallons per day (mgd) of wastewater to the tertiary level (producing disinfected tertiary treated recycled water), and conveys the effluent to a recycled water distribution system for reuse or to Conejo Creek for discharge. Due to the concentration of salt, the effluent has not consistently met the limits of their National Pollutant Discharge Elimination System (NPDES) Permit (No. CA0053597) for discharging to the Creek.

The interconnection will eliminate the discharge to Conejo Creek and will provide CamSan and Camrosa with greater flexibility in managing and distributing recycled water for reuse. CamSan will use the interconnection pipeline to deliver recycled water to new CamSan recycled water customers and the Camrosa storage ponds, from which it can be distributed through Camrosa's extensive non-potable water system.

The connection to the SMP will be used for disposal of any excess recycled water, most likely during winter months when the demand for recycled water for irrigation may be lower.

The interconnection pipeline will have the capacity to convey an average of 7,500 acre-feet of recycled water per year (AFY) from the CamSan water reclamation plant to CamSan customers and/or to the Camrosa ponds and non-potable distribution system for delivery to Camrosa customers for beneficial reuse.

### Goals and Objectives

Implementation of the CamSan/Camrosa Recycled Water Interconnection project will achieve the following objectives:

- Improve the region's water supply reliability through more effective, collaborative distribution and beneficial reuse of recycled water.
- Reduce reliance on State Water Project (SWP) imported water from the fragile Delta, which is vulnerable to supply disruption.
- Reduce energy use and greenhouse gas generation associated with importing water.
- Improve water quality in Conejo Creek.
- Reduce groundwater pumping and allow local aquifers to replenish naturally.

### Purpose and Need

CamSan and Camrosa's need to develop, distribute and make best use of local water supplies, including tertiary treated water, is driven by the continuing vulnerability of the Delta (and therefore, the SWP) to multiple threats that include drought, catastrophic levee failure, and reduced water transfers to protect endangered species.

Although the CamSan Water Reclamation Plant already provides tertiary-treated water for reuse that offsets a portion of the demand for imported supplies, customers within the CamSan service area are unable to make use of all of the available tertiary treated water. Given the ongoing risk of an imported water supply disruption or reduction, this excess local water provides a valuable water resource. To put it to beneficial use, infrastructure is needed to expand distribution opportunities beyond CamSan's service area. Camrosa has existing

non-potable water storage ponds and an associated distribution network that can receive and distribute the water; the CamSan/Camrosa Recycled Water Interconnection is the missing link needed to take advantage this existing infrastructure and recycled water demand.

A further incentive for construction of the interconnection is that CamSan's current practice of discharging a portion of their tertiary-treated wastewater to Conejo Creek under NPDES Permit is not sustainable. The tertiary-treated wastewater has not consistently met permit limits for salt. As a result, a Time-Schedule Order (TSO) (No. R4-2007-0010) was issued to CamSan by the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) on 2 April 2007. The TSO specified interim discharge limits for salts and required submittal of a pollution prevention plan.

The interconnection will eliminate the discharge and therefore, the salt inputs to Conejo Creek from the CamSan water reclamation plant. Because Conejo Creek feeds into Calleguas Creek, this approach will contribute to meeting the objectives of the Calleguas Creek Salts Total Maximum Daily Load (TMDL), which was adopted by the RWQCB and U.S. Environmental Protection Agency in 2008. The TMDL is expected to reduce the disposal of salts in the watershed by approximately 25 percent.

The need for the interconnection was previously identified in the Renewable Water Resource Management Program (RWRMP) for the Southern Reaches of the Calleguas Creek Watershed. This program, which was developed under a cooperative agreement between Camrosa, CamSan, and the City of Thousand Oaks, proposed an integrated set of facilities to reduce reliance on imported water supplies while improving water quality through the managed transport of salts out of the lower Calleguas Creek Watershed.

### **Integrated Elements of Projects**

CamSan, Camrosa, and Calleguas have collaborated in this Watersheds Coalition of Ventura County (WCVC) grant proposal to implement integrated projects that address common goals for improving both water quality

and local water supply reliability in the Calleguas Creek Watershed.

The Recycled Water Interconnection links directly to, and relies on the Calleguas SMP (C-14) to provide a backup option for discharge of excess treated water during wet periods, when demand is minimal. Like the interconnection, Camrosa's Round Mountain Desalter (C-13) is specified as a Phase 1 Water Resource Reclamation strategy in the RWRMP, and will rely on the SMP for discharge of a saline concentrate waste stream.

### **Completed Work**

The initial 7,300 LF of the project was addressed in the Final Program Environmental Impact Report for the RWRMP for the Southern Reaches of the Calleguas Creek Watershed. Camrosa was listed as the lead agency for the Program EIR, and CamSan was the responsible agency.

CamSan has also completed the design for the initial 7,300 LF of the interconnection pipeline, extending from the CamSan water reclamation plant to the crossing at Calleguas Creek as shown on Figure 6 that follows.

### **Existing Data and Studies**

Environmental review and design have been completed for a portion of the project as follows.

- *Final Program EIR for the RWRMP for the Southern Reaches of the Calleguas Creek Watershed.* October 2006. Camrosa Water District. The PEIR addressed the initial 7,500 LF of the project. ([http://www.camrosa.com/documents/final%20eir\\_oct06.pdf](http://www.camrosa.com/documents/final%20eir_oct06.pdf))
- *Final Design Documents.* 2009. Camarillo Sanitary District. The design is for the initial 7,300 LF of the interconnection pipeline, extending from the CamSan water reclamation plant to the crossing at Calleguas Creek as shown on Figure 6. The design documents are contained as Exhibit 3-3 (Att3\_IG1\_WorkPlan\_4of5.pdf on BMS) to this attachment.

## Project Map

Figure 6 shows the location of the new pipeline in yellow.

remaining design starting in July 2011, with completion of the design estimated by June 2012. Construction will begin in January 2013. An 18-month construction period is anticipated.

## Project Timing and Phasing

This project will be constructed in a single phase. CamSan plans to complete the

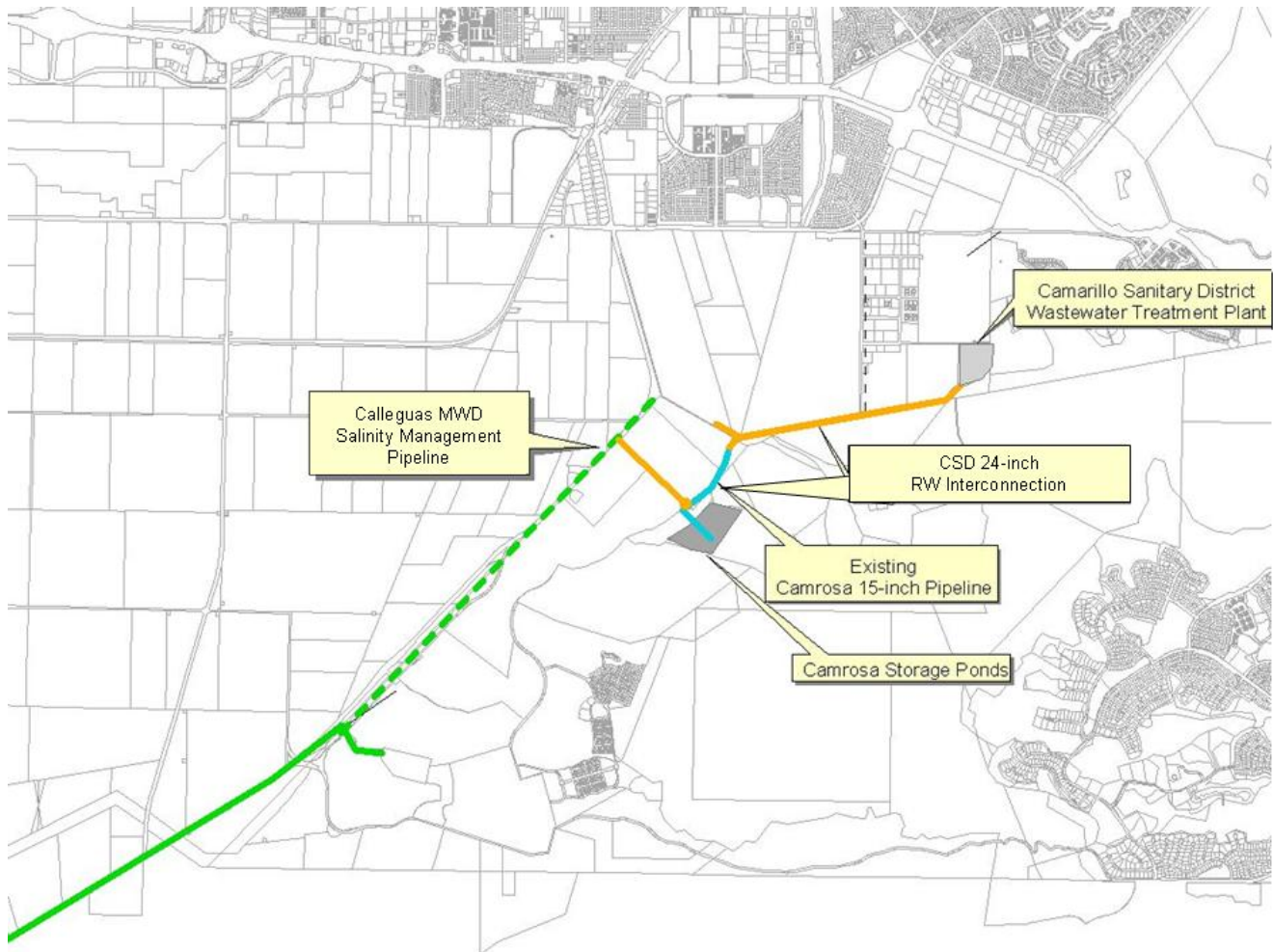


Figure 6: CamSan/Camrosa Recycled Water Interconnection Location

## II. Work Plan

Tasks necessary to construct the CamSan/Camrosa Recycled Water Interconnection project are described in Table 5.

Table 5: Work Plan for CamSan/Camrosa Recycled Water Interconnection Project

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration Description: Prepare and submit invoices. Deliverables: Invoices.
Task 2: Labor Compliance Program Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b). Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.
Task 3: Reporting Description: Prepare quarterly and final reports as specified in the Grant Agreement. Deliverables: Quarterly and final reports as specified in the Grant Agreement.
Task 4: Assessment and Evaluation Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. Reporting will be addressed in Task 3. Deliverables: Monitoring Plan.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 5: Land Purchase/Easement Description: CamSan will make every effort to locate the pipeline alignment within existing easements owned by CamSan and/or Camrosa. However, CamSan will need to acquire easements (construction and permanent) for the pipeline from a series of private landowners along a portion of the alignment. Deliverables: Documentation of easement acquisition.

<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
<p>Task 6: Design</p> <p>Description: CamSan has completed the design for 7,300 feet of the pipeline alignment. Design will be performed for the remaining 2,300 feet of pipeline.</p> <p>Deliverables: Plans and specifications.</p>
<p>Task 7: Environmental Documentation</p> <p>Description: As noted above, the project was included in a Program EIR for the Renewable Water Resource Management Program, which was prepared and adopted in 2006. An amendment to the Program EIR will be prepared to address the additional 2,300 feet of pipeline that will connect the Camrosa storage ponds to the Calleguas SMP. This amendment will also include greenhouse gas analysis.</p> <p>Deliverables: Final Program EIR and Amendment to Program EIR.</p>
<p>Task 8: Permitting</p> <p>Description: The following permits will be obtained prior to construction:</p> <ul style="list-style-type: none"> <li>• Ventura County Watershed Protection District: Encroachment permit for crossing Calleguas Creek.</li> <li>• RWQCB: NPDES permit for dewatering.</li> <li>• State Water Resources Control Board (SWRCB): Coverage under General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.</li> </ul> <p>Deliverables: Copies of permits (to be provided as part of final specifications).</p>
<b>Budget Category (d): Construction/Implementation</b>
<p>Task 9: Construction Contracting</p> <p>Description: The construction bidding process will be initiated after the final design is completed and the CamSan Board of Directors provides authorization to proceed with the project. The Board will verify that permitting and CEQA documentation have been completed and funding is available for the project. The construction bidding process for the project will follow California Public Contract Code requirements, which require public bidding, prevailing wage verification, etc.</p> <p>Deliverables: Notice of Award issued to Contractor.</p>
<p>Task 10: Construction</p> <p>Description: Once the project has been bid and awarded, the contractor will construct the interconnection in accordance with the final plans and specifications.</p> <p>Deliverables: Record drawings, construction photos.</p>



<b>Budget Category (e): Environmental Compliance/Mitigation/Enhancement</b>
-----------------------------------------------------------------------------

Task 11: Environmental Compliance/Mitigation/Enhancement
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Description: During construction, CamSan staff and/or qualified consultants will provide environmental compliance services, which may include, but are not limited to: sampling and analysis of groundwater during dewatering activities and discharges from hydrostatic testing, and ensuring that mitigation measures described in the CEQA document are implemented. Applicable elements of the Monitoring Plan prepared in Task 4 will be implemented in this task.
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Deliverables: None.
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<b>Budget Category (f): Construction Administration</b>
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Task 12: Construction Administration
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Description: During construction, CamSan and/or their designated consultants will provide construction management and administration, including daily on-site observation; testing of materials to be used for construction, including soils and concrete; and documentation of these activities.
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Deliverables: Same as for Task 10, Construction.
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### III. Other Required Information

#### **Procedures**

CamSan will coordinate efforts to deliver recycled water with Camrosa and discharges to SMP with Calleguas. There is an existing agreement between CamSan and Camrosa to implement all of the projects in the RWRMP and that agreement applies to the RW Interconnection. Progress reports will be presented at Calleguas Creek Watersheds meetings and a regularly monthly meeting held with Camrosa and Calleguas.

#### **Standards**

The project will be designed and constructed in accordance with appropriate standards, including those from ASTM, American Waterworks Association (AWWA), and other pertinent construction industry guidance. The project will also be constructed in accordance with applicable sections of the California Health and Safety Code.

#### **Development of Performance Measures and Monitoring Plans**

A monitoring plan to document output and outcome indicators and to describe the measurement tools and methods from Attachment 6, the Project Performance Measures Tables, will be prepared.

#### **Status of Acquisition of Land or Right-of-Way**

Of the 7,300 LF of the project designed to date, 95 percent is located within existing Camrosa right-of-way (ROW), and easements for the remaining portion will be acquired by the end of 2011. CamSan will make every effort to stay within existing easements owned by the City of Camarillo and Camrosa for the remaining 2,300 LF. CamSan will need to acquire both construction and permanent easements from a series of private landowners, and these efforts will be carried out concurrent with the remainder of design.

#### **Building Materials, Project Design Status, and Bid Solicitation Efforts**

Building and materials to be used will be in accordance with ASTM, AWWA, and other construction industry standards. Materials will also be selected to be consistent with materials that were used for existing recycled water pipelines. A portion of the project is already designed, and design of the remainder of the project will be completed in 2011 and 2012. Contractor bids for construction will be solicited once the final design is completed.

#### **Permits**

Task 8 describes the permits that will be required for construction of the project.

#### **Status of Preparation and Completion of Environmental Requirements**

Task 7 describes the environmental documents prepared at a program level for this project, and information about other key documents was provided in the Existing Data and Studies section. An amendment to the Program EIR will be prepared for the additional 2,300 LF of pipeline that remains to be designed.

#### **Work Items to Complete GWMP**

Portions of the project are located in a groundwater basin managed by the Fox Canyon Groundwater Management Agency (FCGMA). The Fox Canyon Groundwater Management Plan was adopted by FCGMA in May 2007 and is provided as Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf in BMS).

#### **Submittals to Granting Agency**

Status reports, in the form requested by the granting agency, will be submitted on a quarterly basis. A final report will also be prepared once the project is completed. Other items required by the grant agreement will also be submitted to the granting agency.

#### **Design Plans and Specifications**

As noted above, plans and specification for a portion of the project (7,300 LF) have been prepared and are provided as Exhibit 3-3. Plans and specifications for the remaining 2,300 LF remain to be completed.

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## United Water Conservation District Seawater Barrier Pilot Well

### United Water Conservation District

Contact:  
Jim Kentosh  
(805) 525-4431  
[JimK@unitedwater.org](mailto:JimK@unitedwater.org)

### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☒ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

### CALFED

#### Primary Objectives

- ☒ Ecosystem quality
- ☒ Water supply
- ☒ Water quality
- ☐ Levee system integrity

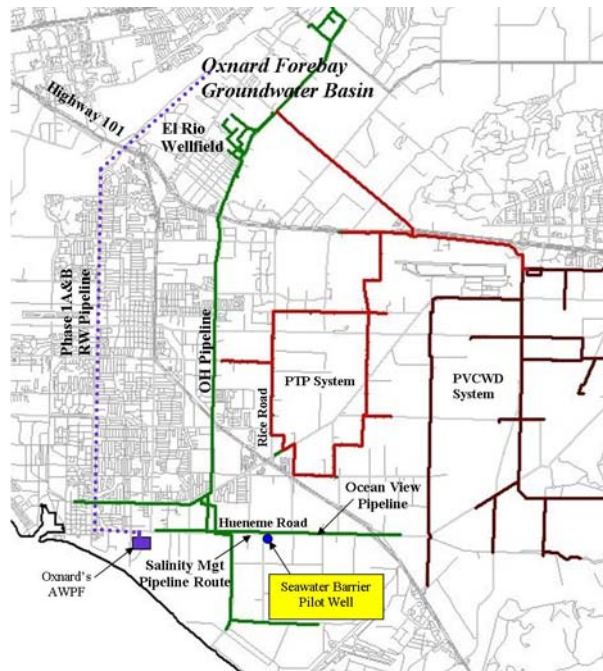
### Project Description

United Water Conservation District (UWCD), in partnership with the City of Oxnard (Oxnard), is planning to install a Seawater Barrier Pilot Well to explore the feasibility of using aquifer storage and recovery (ASR) wells to reduce the rate of seawater intrusion. Based on recent estimates, saline intrusion is increasing at a rate of 260 acres per year, and aquifer overdraft is occurring at a rate of 26,000 acre-feet per year. As a result, water supplies for some urban and agricultural areas are at risk, particularly in the event of a drought, and the existing pattern of water use is not sustainable.

The pilot well will be designed to allow injection of potable water into the deep aquifer, and will also allow groundwater to be extracted from the recharged aquifer. Water to be injected will be groundwater pumped from the shallow aquifer in the Oxnard Forebay, where there are ample supplies. The water will be conveyed to the pilot well site via the Ocean View pipeline in Hueneme Road, which is owned by UWCD and operated as part of the Oxnard-Hueneme (OH) potable water system.

The pumping aspect of the pilot test program will be used to determine backwashing requirements to maintain recharge/injection capacity. Pumped water will be discharged to the existing Calleguas Municipal Water District Salinity Management Pipeline, located adjacent to the well site. Groundwater from the pilot well will also provide an emergency backup water supply to the potable OH pipeline.

The pilot well will be constructed with a completion depth of about 1,000 to 1,200 feet below ground surface and a screened interval limited to the lower aquifer. It will have an injection capacity projected at 1,000 gallons per minute. Water will be injected for a period of about five years to monitor the effects and benefits of ASR.



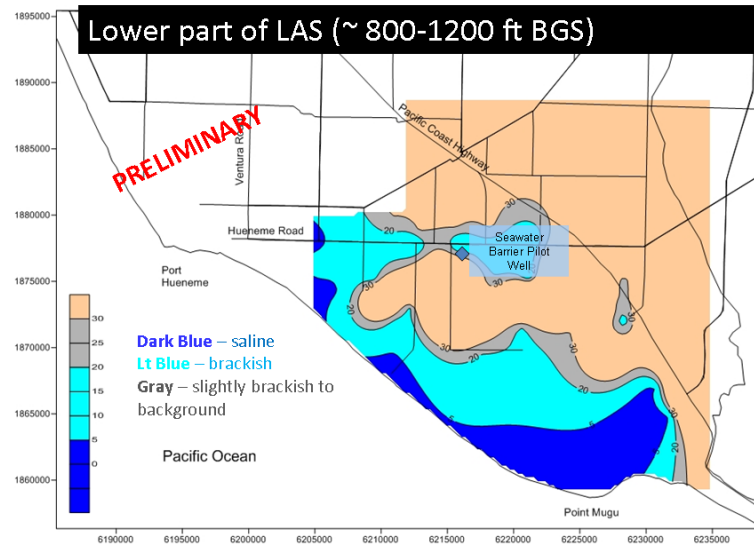
Project Location Map



## United Water Conservation District Seawater Barrier Pilot Well

### Watershed Coalition of Ventura County Primary Objectives

- ☒ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☐ Protect and restore habitat and ecosystems in our watershed
- ☐ Provide water-related public access, recreational, and educational opportunities



Map of Seawater Intrusion

### Project Benefits

Based on results of pilot well testing, UWCD will be able to assess whether the designated location would be optimal for installation of a full ASR wellfield. While testing is the primary purpose of the well, the potential backup groundwater supply that it could provide would also be valued by the community. Lastly, the pilot well is expected to raise public awareness of the benefits of groundwater injection, potentially paving the way for public acceptance of recycled water injection.

If pilot well testing provides favorable results and UWCD and Oxnard opt to proceed with installing the full seawater barrier wellfield, the following benefits are anticipated:

- Seawater intrusion along the coast will be limited, which will protect and improve groundwater quality.
- UWCD and Oxnard will have a better way to manage the long-term balance between pumping and groundwater recharge on the Oxnard Plain, thereby reducing the need for imported water.
- The wells will provide an emergency water supply for the southern portion of the OH System, further improving supply reliability.

### Cost and Schedule

Grant funding requested under Proposition 84 for the Seawater Barrier Pilot Well is \$500,000. An additional \$650,000 will be obtained from other local funding sources such as water rates, pump charges, and property taxes, to make up the total estimated project cost of \$1.15 million.

A supplement to the existing California Environmental Quality Act document will be prepared. Installation of the seawater barrier pilot well will include: (1) well drilling, and (2) wellhead improvements, both of which will occur within the next 2 years. Preparation for well installation has already begun with land acquisition. The pilot well program will be operated for five years.



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

#### I. United Water Conservation District Seawater Barrier Pilot Well

##### Project Description

United Water Conservation District (UWCD), in partnership with the City of Oxnard (Oxnard), is developing a Seawater Barrier Pilot Well to explore the feasibility of installing aquifer storage and recovery (ASR) wells that allow injection of potable water (or highly treated recycled water) into the deep aquifer, as well as extraction from the recharged aquifer. Injection of water is expected to limit seawater intrusion and protect and improve water quality. The pilot well is also expected to raise public awareness of the benefits of groundwater injection, potentially paving the way for public acceptance of recycled water injection. When the seawater barrier is fully implemented as planned, it will provide flexibility for management of local groundwater and recycled water, and may reduce the need for imported water.

With the pilot well, it will be possible to:

- Evaluate whether the designated location is optimal for installation of the full wellfield.
- Confirm that the chemistry of groundwater from the shallow supply aquifer is compatible with the deep receiving aquifer.
- Assess the rate of flow and direction of injected water away from the well.
- Determine backwashing requirements.
- Provide data for the permitting process for injection of recycled water into a potable aquifer.

Water to be injected during the pilot study will be groundwater pumped from the shallow aquifer in the Oxnard Forebay, where there are ample supplies due to recharge by surface water diversions and the Santa Clara River. The water will be conveyed to the pilot well site via the Ocean View pipeline in Hueneme Road, which is owned by UWCD and operated as part

of the Oxnard-Hueneme (OH) potable water system.

Completion depth of the pilot well will be about 1,000 to 1,200 feet below ground surface (bgs). The lower aquifer will be screened, and the upper aquifers will be sealed off. The injection capacity of the well is projected at 1,000 gallons per minute (gpm), based on a pumping capacity of at least 2,000 gpm.

The pumping component of the pilot test program will be used to determine backwashing requirements to maintain recharge capacity. Pumped water will be discharged to the existing Calleguas Municipal Water District (Calleguas) Salinity Management Pipeline (SMP), located adjacent to the well site.

The pilot well will also provide an emergency backup water supply to the OH pipeline. During plant shutdowns or emergencies, UWCD's largest customers (Oxnard and Port Hueneme Water Agency) can draw from alternate water sources. However, several small mutual water companies have no backup, and would greatly benefit from this emergency water supply.

Potable water will be injected for a period of about five years to monitor the effects and benefits of ASR. At the conclusion of the study, a decision will be made by UWCD and Oxnard, in conjunction with UWCD's other stakeholders, on whether to proceed with the full-scale seawater barrier wellfield. If so, the pilot well will be considered the first well of the wellfield. The water supply for the full implementation may include recycled water, pumped water, or some combination of sources.

In the event that the seawater barrier is found to be infeasible, the well will most likely be used for the City of Oxnard's own recycled water injection program for recycled water storage or to continue to inject groundwater from the OH wellfield in the Oxnard Forebay. Alternatively, it could be used as an agricultural delivery well for the pumping trough pipeline (PTP) or an emergency backup well to the Oxnard-Hueneme potable water system. The PTP



system is non-potable system that supplies surface and groundwater to local farms.

Of the available options, continuation of potable injection would be the most protective of the aquifers. Nevertheless, the other options provide the maximum flexibility to ensure that the well will be put to beneficial use no matter the outcome of the pilot program.

## Goals and Objectives

The pilot well, leading to full implementation of the seawater barrier, will address multiple local and regional goals for water supply reliability and water quality, as follows:

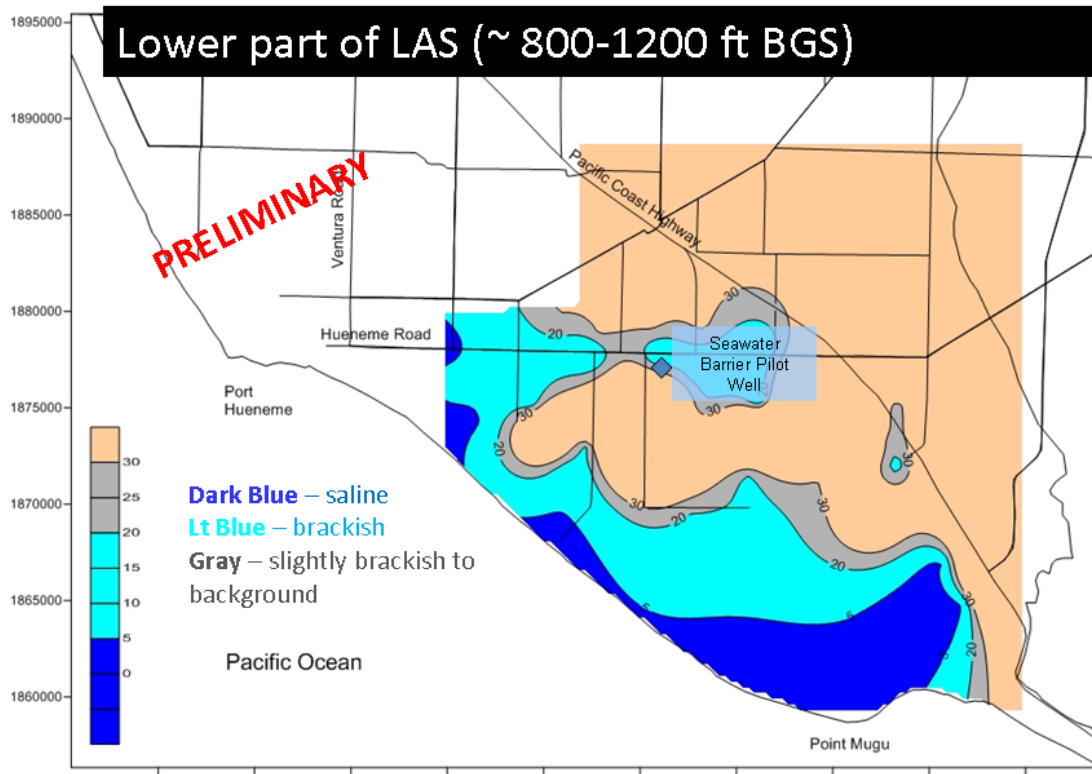
- Reduce seawater intrusion along the coast to protect and improve groundwater quality,
- Improve the long-term balance between pumping and groundwater recharge on the Oxnard Plain, thereby reducing the need for imported water.
- Provide an emergency water supply for the southern portion of the OH System.

The long-term water balance and reduction in imported water demand will be realized to a

greater extent when the pilot is scaled-up to develop the seawater barrier wellfield. Also at that time, there will be additional project goals related to use and best management of recycled water.

## Purpose and Need

Beginning in the 1950s, seawater intrusion was identified along the coast of the Oxnard Plain, causing some wells to become unusable. It is estimated that approximately 22 square miles of aquifers have been contaminated by seawater intrusion. Facilities were constructed to move pumping away from the coast and recharge the aquifer, such as UWCD's OH pipeline and Freeman diversion in the Oxnard Forebay area of the Oxnard Plain aquifer. These efforts have partly reversed seawater intrusion in some coastal areas. However, portions of the aquifers in the Oxnard Plain, particularly in the southern and eastern portions, are still being 'mined' and saline water is intruding as shown on Figure 7 below. Some areas are at risk of losing their water supply, especially during droughts. UWCD needs to construct new facilities to bring the aquifers into balance over the long-term.



**Figure 7: Saline Intrusion**

Both cities and agricultural users in Ventura County rely on groundwater from the Oxnard Plain delivered by UWCD. This low-cost water supply is critical to the County's agricultural industry, which ranks about 8<sup>th</sup> among all counties in the U.S., with more than \$1.5 billion in annual gross revenues. The County is first in the nation in production of strawberries, lemons, and celery. UWCD's urban water customers include the cities of Oxnard, Ventura, Port Hueneme, and two U.S. Naval bases.

Based on recent estimates, the saline intrusion area is increasing at a rate of 260 acres per year, and aquifer overdraft is occurring at a rate of 26,000 acre-feet/year (AFY). As a result, water supplies for some urban and agricultural areas are at risk, particularly in the event of a drought. Using the single pilot well, 1,500 AF of water can be injected per year, which translates to 6 percent of the total loss per year.

A drought, when groundwater levels are at a minimum, is the most critical time for guarding against seawater intrusion. Groundwater gradients become steeper due to continued pumping, drawing in seawater. Because the seawater barrier project would provide protection during a drought, it also provides assurance for pumping under normal conditions. This is important considering that drought is difficult to predict.

An important purpose of the pilot project will assess the compatibility of the injected water from the Upper Aquifer system with the receiving water of the Lower Aquifer system. The chemistry of groundwater from each aquifer is intrinsically different. When the waters are comingled, precipitation or deposition reactions may occur in the well formation or gravel pack of the well, reducing the injection rate. In the case of precipitation, backwashing the well may restore permeability and maintain recharge rates. Chemical testing and flow rate monitoring during the pilot study will allow evaluation of these effects, if any, to assess whether they would constitute a problem in a full-scale design.

Injection of recycled water represents both a potential long-term solution for saline intrusion and an opportunity for reuse of recycled water.

Currently, Oxnard provides secondary treatment for over 20,000 AFY of wastewater, which is discharged to the ocean through an outfall. Construction is underway to add facilities for advanced treatment to facilitate beneficial reuse, such as for seawater injection.

Once the seawater barrier wellfield is established and permitted to accept recycled water, it will allow beneficial disposal and storage of excess recycled water during the winter months, when water demand for irrigation purposes is lower. Recycled water will be available for injection year-round, even during droughts, when the aquifers are in the greatest need of recharge. Due to the depth of the aquifers, injection can continue irrespective of seasons or local climate conditions.

However, public approval of future plans for injection of highly treated recycled water into potable aquifers must be cultivated through extensive outreach with scientific data that demonstrate effectiveness and safety. The pilot study will use groundwater to demonstrate the benefits of injection over a five-year period, and will verify that aquifer characteristics are conducive to a successful wellfield project. This study will improve the potential for public acceptance of a full-scale seawater barrier utilizing recycled water.

Oxnard and Port Hueneme, two of UWCD's customers who will benefit from a barrier wellfield, currently receive imported State Water Project water from Calleguas, a member agency of the Metropolitan Water District of Southern California. The water is pumped from the Bay-Delta. Reducing demand for imported water by substituting local supplies is preferred, in terms of water supply reliability, environmental sustainability and cost. Imported water demand will increase if local groundwater resources are not protected by means such as the proposed seawater barrier wellfield.

## **Integrated Elements of Projects**

The Seawater Barrier Pilot Well was identified as a component of the City of Oxnard's Groundwater Recovery and Enhancement and Treatment (GREAT) program. This program consists of innovative strategies to address water supply and water quality challenges in the

region. In addition to the seawater barrier, other GREAT components include advanced wastewater treatment to produce high-quality recycled water for irrigation and groundwater recharge (potentially including recharge for the seawater barrier wellfield, if developed); delivery of recycled water for irrigation to offset groundwater use; and transfer of groundwater pumping.

As described earlier, groundwater pumping in the Oxnard Forebay basin, which is more easily recharged by surface water diversions and the Santa Clara River, is the preferred water supply for the Seawater Barrier Pilot Well and integrates with UWCD's overall Water Management Plan. With reliance on water pumped from Oxnard Forebay, the Seawater Barrier Pilot Well project will greatly benefit from recent efforts to protect water quality in the area. Specifically, under Proposition 50, the El Rio Forebay Groundwater Contaminant Elimination Project, Phase 7 (SC-1) and Oxnard Forebay Groundwater Contaminant Elimination Project, College Park Phase (SC-2) were constructed to eliminate septic tanks as a source of groundwater contamination.

The seawater barrier concept is consistent with UWCD's regional approach to management of seawater intrusion. To date, this has included construction of facilities to move pumping away from the coast and recharge the aquifer, such as UWCD's OH pipeline and Freeman diversion in the Oxnard Forebay. This approach will bring the regional aquifers into balance over the long-term. Groundwater production using the Seawater Barrier Pilot Well will be facilitated, in part, by the proximity of the Calleguas SMP for discharge of backwash water. The existing components of the SMP that will be used were constructed under Proposition 50, including the Hueneme Outfall (Project C-1) and Phase 1E of the SMP (Project C-12). Further extension of the SMP in Phase 2A, which is described as Project C-14 of this Proposal, will provide similar benefits for desalting projects in more of the Watersheds Coalition of Ventura County (WVCV) Region.

Data collected during drilling for the pilot well will also contribute to a related UWCD research

project: *Saline Intrusion Barrier Seismic Reflection Survey*. This project was funded by an AB 303 grant from the State of California.

## Completed Work

UWCD's 2007 *Water Management Plan* identified several projects, including seawater barrier wells, to help bring local aquifers into long-term balance.

Under the California Environmental Quality Act (CEQA), an Environmental Impact Report (EIR) was prepared by Oxnard for the GREAT program, including the Seawater Barrier Pilot Well (SCH #2003011045). The EIR was adopted by Oxnard on 14 September 2004. This document will be updated as part of the project in the form of an updated Initial Study/Mitigated Negative Declaration (IS/MND).

A Phase 1 Environmental Site Assessment was conducted for the pilot well site to identify potential environmental hazards attributable to past land uses at the site and in the site vicinity. No unacceptable risks were identified. Additionally, UWCD has acquired the right-of-way for the pilot well site.

Prior to the grant award date of 1 June 2011, it is anticipated that an IS/MND will be prepared to address site-specific environmental impacts, including greenhouse gas (GHG) production, and plans and specifications will be prepared for the well drilling and casing installation.

## Existing Data and Studies

Prior studies that describe the need for the project, assess feasibility, and/or provide other relevant background information are listed below and available upon request:

- *Water Management Plan Summary Report*, 26 September 2007. UWCD. (<http://www.unitedwater.org/images/stories/reports/wmp%20summary%20report%209-26-07.pdf>).
- *Groundwater Management Plan*, adopted June 2007. Fox Canyon Groundwater Management Agency (FCGMA). Included as Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf on BMS).

- *GREAT Program Water Resources Technical Report*, February 2004. CH2MHill.  
<http://developmentservices.cityofoxnard.org/Uploads/Planning/WaterResourcesTechnicalReport.pdf>
- *Recycled Water Master Plan, Phase 1*, January 2009. Kennedy/Jenks Consultants.
- *Recycled Water Master Plan, Phase 2*, July 2010. Kennedy/Jenks Consultants.
- *Final Program EIR for the Groundwater Recovery Enhancement and Treatment (GREAT) Program*, May 2004. CH2MHill. ([GREAT Program](#))
- *Proposed Injection Well Site Appraisal Report*, 24 August 2009. Ventura County Appraisal Company.
- *Phase I Environmental Site Assessment, Pilot Well Site, East Hueneme Road*, 4 August 2010. Rincon Consultants.

## Project Maps

A location map for the pilot well is provided as Figure 8.

## Project Timing and Phasing

Installation of the seawater barrier pilot well will proceed in two phases: (1) well drilling, and (2) wellhead improvements. The pilot well program will be operated for five years.

Preparation for well installation has already begun, as indicated in the Completed Work discussion above. However, the final schedule for installation will need to be coordinated with the landowner, who is growing sod on his property. Per the agreement between UWCD and the landowner, UWCD will provide advance notification of their plan to proceed so that he can harvest his most recent crop before the work begins. Depending on his cropping schedule, the timing of the well drilling and construction may need to be adjusted.

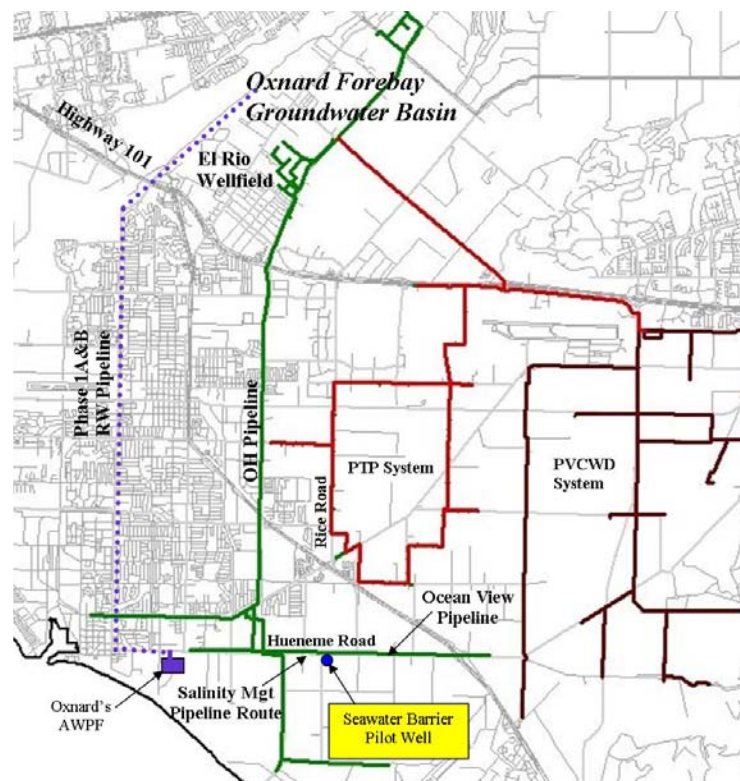


Figure 8: Project Location

## II. Work Plan

Tasks necessary to install and evaluate the Seawater Barrier Pilot Well are described in Table 6.

Table 6: Work Plan for UWCD Seawater Barrier Pilot Well

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration Description: Prepare and submit invoices to DWR. Deliverables: Invoices.
Task 2: Labor Compliance Program Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b). Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.
Task 3: Reporting Description: Prepare quarterly and final reports as specified in the Grant Agreement. Deliverables: Quarterly and final reports as specified in the Grant Agreement.
Task 4: Assessment and Evaluation Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. Reporting will be addressed in Task 3. Deliverables: Monitoring Plan.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 5: Property Appraisal Description: An appraisal of the well site has been completed to justify and support the cost of purchasing the easement from a private landowner. The appraisal covered both a permanent well site easement and a temporary construction easement. Deliverables: Completed Appraisal report.
Task 6: Phase 1 Site Assessment Description: A Phase 1 Environmental Site Assessment report was prepared to evaluate the potential presence of contaminated or hazardous materials at the future well site. Deliverables: Completed Phase 1 Environmental Site Assessment Report.

#### Task 7: Well Site Easement Acquisition

Description: UWCD has purchased a permanent well site easement for the Seawater Barrier Pilot Well and a temporary construction easement to provide land area on which to store equipment during the construction phase of the project.

Deliverables: Easement documents to be part of final plans and specifications.

#### **Budget Category (c): Planning/Design/Engineering/Environmental Documentation**

#### Task 8: Supplemental CEQA Documentation

Description: A supplemental CEQA document will be prepared to update the existing (2004) EIR. It is expected that the document will be a MND. The documentation will be adopted by UWCD's Board of Directors. The supplemental CEQA document will address GHG emissions impacts, as required under AB 32 and the SB 97 amendment to CEQA.

Deliverables: Final MND.

#### Task 9: Well Plans and Specifications

Description: Plans and specifications will be prepared for the well drilling contract documents. This contract will cover drilling the well, development and testing of the well, a stainless steel casing, sanitary seal, and a flange at ground level.

Deliverables: Well drilling contract documents.

#### Task 10: Wellhead Improvement Plans and Specifications

Description: Plans and specifications will be prepared for the wellhead improvements, which include the pump, motor, electrical panels, piping, valves, electrical/SCADA system components service, pipeline connection to the Ocean View pipeline, pipeline connection to the Calleguas SMP, well pad, access road, fencing, and landscaping.

Deliverables: Wellhead improvements contract documents.

#### Task 11: Permitting

Description: The following permits will be obtained prior to construction:

- Ventura County: Drilling permit from the Ventura County Watershed Protection District (VCWPD).
- Ventura County: Encroachment permit for Hueneme Road.
- Regional Water Quality Control Board (RWQCB): Coverage under General Permit for Discharges of Low Threat Hydrostatic Test Water to Surface Waters.

UWCD will use the services of a consultant(s) to help obtain the permits.

Deliverables: Copies of permits.



<b>Budget Category (d): Construction/Implementation</b>
<p>Task 12: Construction Contracting</p> <p>Description: After the design is completed, construction of the Seawater Barrier Pilot Well will be advertised for public bidding through UWCD's standard construction bidding procedures. This will be done as two discrete requests for proposals (RFPs): one for well drilling and another for the wellhead improvements. UWCD will hold a pre-bid meeting for each contract. UWCD's Board of Directors will award the contract for each scope to the responsible bidder with the lowest bid, in accordance with the Public Contract Code.</p> <p>Deliverables: Notices of award for the two contracts.</p>
<p>Task 13: Well Construction</p> <p>Description: Once the well drilling construction contract has been awarded and the contract documents executed, the contractor will drill, construct and develop the well, in accordance with the plans and specifications.</p> <p>Deliverables: Well completion report (DWR Form 188), pipeline and pumping facility record drawings, construction photos.</p>
<p>Task 14: Wellhead Improvements Construction</p> <p>Description: Once the wellhead improvements construction contract has been awarded and the contract documents executed, and the well has been constructed, the contractor will construct the wellhead facilities in accordance with the plans and specifications.</p> <p>Deliverables: Record drawings, construction photos.</p>
<b>Budget Category (e): Environmental Compliance/Mitigation/Enhancement</b>
<p>Task 15: Environmental Compliance &amp; Mitigation</p> <p>Description: During construction, UWCD staff and/or their designated engineering consultants will provide environmental compliance services, which may include, but are not limited to sampling and analysis of pumped well water and/or water discharged from hydrostatic testing; specialized archaeological and cultural resource inspection, oversight, and analysis; and compliance reporting for these and other environmental issues.</p> <p>Deliverables: Compliance monitoring report(s).</p>
<b>Budget Category (f): Construction Administration</b>
<p>Task 16: Construction Administration</p> <p>Description: During the two stages of construction, UWCD staff and/or their designated consultants will provide construction management and administration, including daily on-site observation; inspection of materials and equipment; and documentation of activities.</p> <p>Deliverables: Record drawings, construction photos.</p>

### III. Other Required Information

#### Procedures

Project partners will collaborate in a number of areas to ensure the success of the project, including the following:

- UWCD and Oxnard will execute an agreement to define roles and responsibilities and allocation of costs between the two entities.
- UWCD will coordinate with Calleguas regarding use of the SMP for pumped water discharges.
- UWCD will request confirmation from the FCGMA for credits for water pumped from the Oxnard-Hueneme wellfield.

#### Standards

The Seawater Barrier Pilot Well will be designed and constructed in accordance with appropriate standards, including but not limited to the following:

- American Waterworks Association (AWWA) standards
- California Water Code
- State of California well construction code
- Ventura County well construction codes
- ASTM standards
- American Petroleum Institute (API) standards
- National Ground Water Association (NGWA) standards.

#### Development of Monitoring Plan

The Monitoring Plan will be prepared and submitted to the Department of Water Resources. If comments are received, the documents will be revised and resubmitted, as appropriate.

#### Status of Acquisition of Land or Right-of-Way

UWCD has purchased an easement for the pilot well. The agreement between UWCD and the landowner provides for advance notification of the construction. This will allow the landowner to harvest his current sod crop before well construction commences. Depending on the cropping schedule, the schedule for well drilling and construction may need to be adjusted to accommodate the landowner.

#### Building Materials, Project Design Status, and Bid Solicitation Efforts

Building and construction materials will be in accordance with ASTM, AWWA, and construction industry standards, consistent with materials used at other UWCD well facilities. The well casing will be stainless steel to extend the useful life for the well. Bids will be solicited once the plans and specifications are complete.

#### Permits

As discussed in Task 11, the following permits are required prior to constructing the Seawater Barrier Pilot Well:

- Ventura County: Drilling permit from VCWPD.
- Ventura County: Encroachment permit for the pipelines in Hueneme Road.
- RWQCB: Discharge permit for disposal of hydrostatic testing water.

#### Status of Preparation and Completion of Environmental Requirements

As noted above, an EIR was prepared by Oxnard for the GREAT program, including the Seawater Barrier Pilot Well (SCH #2003011045). The EIR was adopted by Oxnard on 14 September 2004.

Because the EIR is a few years old, a supplemental CEQA document will be prepared to cover site specific impacts and any changes since its adoption. The EIR did not identify any significant impacts caused by the Seawater Barrier Pilot Well. Therefore, it is expected that a MND will be sufficient. The MND will also

address GHGs, in accordance with SB97. Preparation of that document is expected to start before the grant award date.

Mitigation measures in the MND will include monitoring measures to ensure that the injection program does not cause any adverse effects near the injection point or adverse effects on the Oxnard Forebay due to the increase in pumping. UWCD's mission is to protect the local aquifers, and they have a strong interest in ensuring that adverse effects to the aquifers do not occur. In the event of a drought, it may be necessary to reduce injection to avoid overpumping from the Oxnard Forebay.

### **Work Items to Complete GWMP**

The seawater barrier pilot well location is within the FCGMA. The seawater barrier was identified as a strategy in the FCGMA's Groundwater Management Plan, prepared in 2007. Included in Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf on BMS).

### **Submittals to Granting Agency**

Status reports, in the form requested by the granting agency, will be submitted on a quarterly basis. A final report will also be prepared once the project is completed. Other items required by the grant contract will also be submitted to the granting agency.

### **Design Plans and Specifications**

Plans and specifications will be prepared as part of the contract documents for the well construction (Task 9) and for the wellhead improvements construction (Task 10).



## Ventura County Waterworks District No. 16 Piru Treatment Plant Tertiary Upgrade

### Ventura County Waterworks District No.16

Contact: Anne Dana  
(805) 378-3005  
[Anne.Dana@ventura.org](mailto:Anne.Dana@ventura.org)

#### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☐ Contribute to attainment or one or more objectives to CALFED
- ☒ Address critical water supply/quality needs of DAC
- ☐ Effectively integrate water management with land use planning
- ☐ For Flood Management - projects that provide multiple benefits

#### Statewide Priorities

- ☒ Drought preparedness
- ☒ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☐ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☒ Ensure equitable distribution of benefits

#### CALFED

##### Primary Objectives

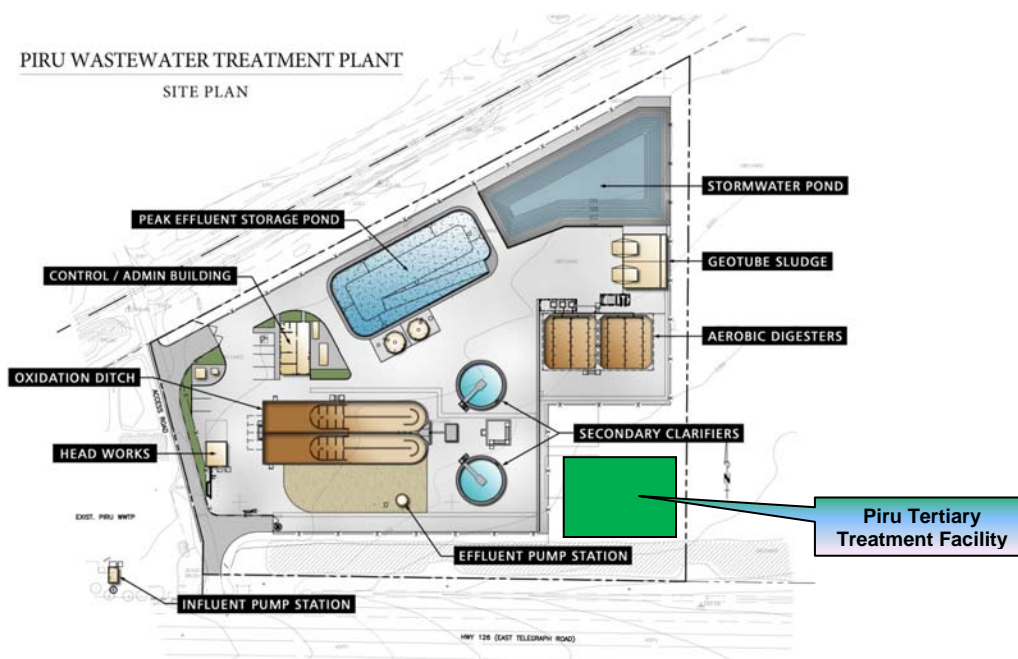
- ☐ Ecosystem quality
- ☐ Water supply
- ☐ Water quality
- ☐ Levee system integrity

### Project Description

Ventura County Waterworks District No. 16 (VCWWD No. 16) plans to construct a tertiary treatment upgrade for the existing Piru Wastewater Treatment Plant (PWWTP). After tertiary treatment, effluent from the PWWTP will meet California Code of Regulations, Title 22 requirements for unrestricted recycled water, and will be available for use as a new, lower cost irrigation supply for up to 600 acres of nearby agricultural property. The recycled water supply will offset a portion of the existing agricultural irrigation water demand that is currently met with groundwater delivered by Warring Water Service, Inc., local surface water diverted by the Piru Mutual Water Company, and local irrigation wells.

The PWWTP provides primary and secondary sewage treatment for the Piru disadvantaged community (DAC). The existing treatment facilities, which were recently replaced at the same location, were designed with a capacity of 500,000 gallons per day. Secondary treatment occurs in an oxidation ditch, and final effluent is currently discharged to two groundwater percolation ponds. Because the treated effluent contains relatively high concentrations of chloride and total dissolved solids (TDS), the Regional Water Quality Control Board (RWQCB) has required that VCWWD No. 16 develop a plan to comply with groundwater quality objectives under the percolation ponds. When the tertiary treatment system is completed, the percolation ponds will no longer be needed because the recycled water will be reused for irrigation instead of percolated thus allowing compliance.

VCWWD No. 16 anticipated the tertiary upgrade as a follow up to the recent PWWTP replacement project shown on the Site Plan below; therefore, the primary/secondary facilities already provide the infrastructure needed to readily connect the tertiary upgrade, such as effluent piping, spare electrical and control conduits, and reserved space in the electrical cabinets for the power supply.



Site Plan



## Ventura County Waterworks District No. 16 Piru Treatment Plant Tertiary Upgrade

### Watershed Coalition of Ventura County Primary Objectives

- ☐ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☐ Protect people, property, and the environment from adverse flooding impacts
- ☐ Protect and restore habitat and ecosystems in our watersheds
- ☐ Provide water-related public access, recreational, and educational opportunities

### Project Benefits

The tertiary upgrade will provide significant water supply and economic benefits to the Piru DAC. Up to 500 acre-feet per year of recycled water will be available and is expected to be used by neighboring nurseries and citrus farmers for irrigation. This will reduce their need to purchase groundwater or surface water or pump groundwater.

With the change in discharge strategy, whereby the percolation ponds will no longer be used, the upgraded PWWTP and resultant recycled water production will be able to meet the RWQCB's groundwater quality objective for chloride, as specified in Waste Discharge Requirements Order No. R4-2009-0027, in a cost-effective manner. Other options to meet this limitation would not be economically feasible for the Piru DAC.

In Piru, as in many parts of California, there is a critical need to develop drought-proof sources of water. Agricultural users in Piru currently pump groundwater and divert surface water, but that supply can be limited, especially during drought periods when it is also in demand for potable uses. Construction of the Piru Tertiary Upgrade will allow production of recycled water suitable for reuse, rather than discarding the effluent as a wasted resource. This will help preserve the groundwater and surface water supply for potable users who cannot use recycled water. It is also consistent with regional goals, as well as the statewide priority of reusing water more efficiently.

### Cost and Schedule

Grant funding requested under Proposition 84 for the VCWWD No. 16 Piru Treatment Plant Tertiary Upgrade is \$3.75 million. An additional \$237,000 will be obtained from other local funding sources to meet the total estimated cost of just under \$4 million.

Upon contract award, VCWWD No. 16 will develop and issue a request for qualifications (RFQ) for design/build (D/B) contractors. The pre-qualification process will be followed by a request for proposals (RFP). The D/B contract is expected to be awarded by October 2012. Design is expected to be finalized by April 2013, and construction is targeted for completion by the end of 2013.



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

#### I. Ventura County Waterworks District No. 16, Piru Treatment Plant Tertiary Upgrade

##### Project Description

Piru Wastewater Treatment Plant (PWWTP) is owned by Ventura County Waterworks District No. 16 (VCWWD No. 16) and operated by Ventura Regional Sanitation District (VRSD) to provide sewage treatment for the Piru disadvantaged community (DAC). The existing facilities provide secondary wastewater treatment. This work plan describes the approach for constructing the Piru Treatment Plant Tertiary Upgrade (Piru Tertiary Upgrade), as shown on Figure 9, which will enable VCWWD No. 16 to treat wastewater to meet California Code of Regulations (CCR), Title 22 requirements for unrestricted recycled water. The recycled water supply will be available for agricultural irrigation allowing local groundwater and surface water to be put to other uses.

The existing PWWTP facilities were recently replaced at the same site, as required by Waste Discharge Requirements (WDRs) Order No. R4-2009-0027 from the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) (dated 5 February 2009). The new plant, which began operating in February 2010, has a design capacity of 500,000 gallons per day. An oxidation ditch is used for secondary treatment, and final effluent is currently discharged to two groundwater percolation ponds.

When the tertiary treatment system is operational, use of the percolation ponds will be discontinued. This will eliminate the percolation of treated effluent containing high concentrations of chloride and total dissolved solids (TDS) through the ponds, facilitating compliance with RWQCB requirements to reduce salt loading to the

groundwater. The recycled water is expected to be used by neighboring nurseries and citrus farmers as shown on Figure 10 in the Project Map section.

The Piru Tertiary Upgrade will entail:

- Developing a 14,000 square-foot site adjacent to the existing treatment facilities.
- Installing a pump lift station.
- Installing tertiary filters.
- Incorporating chemical disinfection facilities.

Because the upgrade was planned as a second phase of the recent PWWTP replacement project, the site was set aside and the facilities designed in the first phase included infrastructure to readily connect the tertiary upgrade, such as plant effluent piping, spare electrical and control conduits, and reserved space in the electrical cabinets for power supply.

The tertiary upgrade will be constructed using the design-build (D/B) project delivery method, which was successfully employed in the first phase. The design-build approach reduces the duration of the overall project schedule.

##### Goals and Objectives

The goals and objectives of the Piru Tertiary Upgrade are to:

1. Provide tertiary treatment at the site of the existing PWWTP to allow for production of unrestricted-use recycled water.
2. Provide up to 500 acre-feet per year (AFY) of recycled water for landscape irrigation and agricultural purposes.
3. Comply with RWQCB requirements for discharge of salt to groundwater basins.
4. Achieve long-term compliance with WDRs.



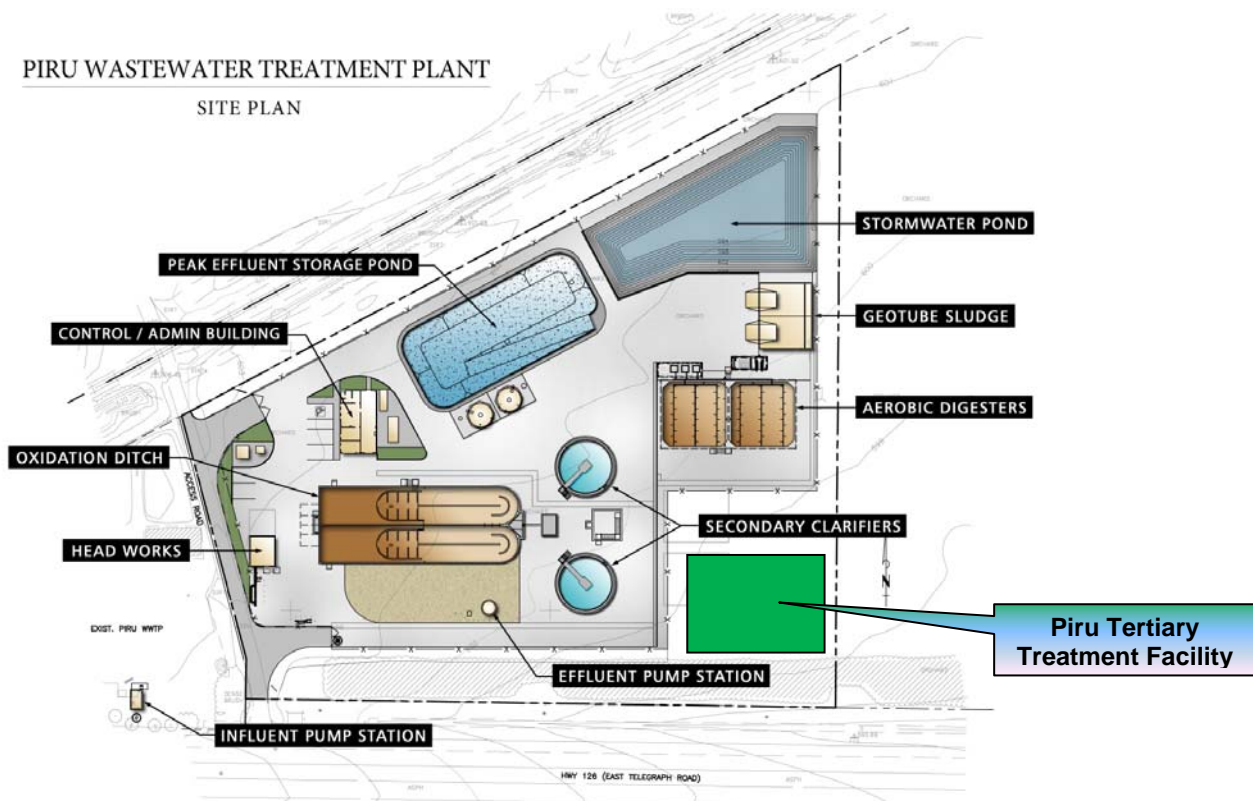


Figure 9: Site Plan

## Purpose and Need

WDRs for the PWWTP require that VCWWD No. 16 meet an effluent limit and groundwater quality objective for chloride of 100 milligrams per/liter (mg/L). Effluent from the facility has not consistently met this standard. In a letter to VCWWD dated 18 March 2010, the RWQCB indicated that the facility would need to take steps to control chloride to meet the limit within 2 years or cease discharging to groundwater via the percolation ponds. RWQCB offered a set of potential approaches to control chloride. None of these options is feasible for VCWWD, to implement. However, the Piru Treatment Plant Tertiary Upgrade will provide an alternative approach to comply with the groundwater quality objective for chloride, by ceasing discharge to the percolation ponds by 2012, and managing recycled water for beneficial reuse.

If the Piru Treatment Plant Tertiary Upgrade is not implemented, the Piru DAC will have no means of complying with the RWQCB order for

chloride mitigation. If no action is taken, the facility would be subject to further RWQCB enforcement actions starting in 2012, possibly leading to closure of the new PWWTP facility if no alternative solution can be identified.

The Piru Treatment Plant Tertiary Upgrade was targeted specifically to benefit the Piru DAC, which does not have the resources to address water supply challenges as an independent entity. In Piru, as in many parts of California, there is a critical need to develop drought-proof sources of water. Agricultural users in Piru currently pump groundwater, but that supply can be limited, especially during drought periods when it is also in demand for potable uses. Construction of the tertiary treatment system will allow production of recycled water suitable for reuse, rather than discarding the effluent as a wasted resource. This will help preserve the groundwater supply for potable users who cannot use its local surface water.

## Integrated Elements of Projects

This project integrates with and completes the original PWWTP upgrade project. When complete, it will meet the same WVCV IRWM Plan objectives that were the basis for a very similar project constructed under Proposition 50, the Fillmore Integrated Water Recycling and Wetlands Project, Phase II-A (SC-3). The Fillmore project, which was recently completed, now benefits the local water supply in nearby Fillmore by reusing tertiary effluent for irrigation and complying with RWQCB mandates for salts in the Santa Clara Watershed.

The PWWTP upgrade and the Calleguas Municipal Water District Salinity Management Pipeline, Phase 2A (C-14) share similar goals of improving local supply reliability through increased use of currently non-potable water supplies, and meeting RWQCB mandates for addressing salts in watersheds.

## Completed Work

As required under the California Environmental Quality Act (CEQA), a Mitigated Negative Declaration (MND) for the PWWTP Upgrade/Expansion project was certified by the County of Ventura Board of Supervisors (Board) on 28 September 2004. To address the Tertiary Upgrade, an Addendum to the MND for the PWWTP Upgrade/Expansion Project was adopted by the Board on 7 August 2008.

The initial phase of the PWWTP Upgrade/Expansion project included construction of the following:

1. Control/operation building
2. Influent lift station
3. Headworks
4. Oxidation ditch for activated sludge secondary treatment process
5. Secondary clarifiers
6. Aerobic digesters
7. Effluent pump station.

The project site was master-planned to accommodate future construction of the tertiary filtration and disinfection facilities in the

southeastern corner of the property. A Conditional Use Permit for the change in the PWWTP has been obtained from the Ventura County Planning Commission.

## Existing Data and Studies

Relevant prior studies have included the following:

- *Technical Memorandum: PWWTP Evaluation of Alternative Technologies for PWWTP Improvements.* February 2008. Kennedy/Jenks Consultants.
- *Final Mitigated Negative Declaration for the Piru Wastewater Treatment Plant Upgrade/Expansion Project.* September 2004.
- *Addendum to the Final Mitigated Negative Declaration for Upgrade/Expansion Project.* July 2008.
- *Preliminary Geotechnical Report – Piru Wastewater Treatment Plant.* September 2008. Fugro-West.
- *Ventura County Waterworks District No. 16, Design-Build of Piru Wastewater Treatment Plant, Request For Proposals, Volume III.* 17 October 2008.
- *The Piru Wastewater Treatment Plant. Ventura County Waterworks District No. 16, Piru Wastewater Treatment Plant, As-Built Plans.* 2010.
- *2008 Piru and Fillmore Groundwater Basins Annual Groundwater Conditions Report.* August 2009. Groundwater Resources Department, United Water Conservation District (UWCD).  
<http://www.unitedwater.org/images/stories/reports/final%202008%20piru-fillmore%20ab3030%20report.pdf>

## Project Map

A site location map is provided as Figure 10.

## Project Timing and Phasing

The site plan for the new PWWTP was master-planned to include future development and expansion, including the tertiary treatment facility. The new PWWTP facility was the first phase of work, and became operational on 19 February 2010. The Piru Tertiary Upgrade will be the second and final phase.

As noted above, the Tertiary Upgrade will be constructed using the D/B method for project delivery. This will begin with a request for qualifications (RFQ) and request for proposals (RFP) process to select a contractor. Environmental documents have been completed and approved.

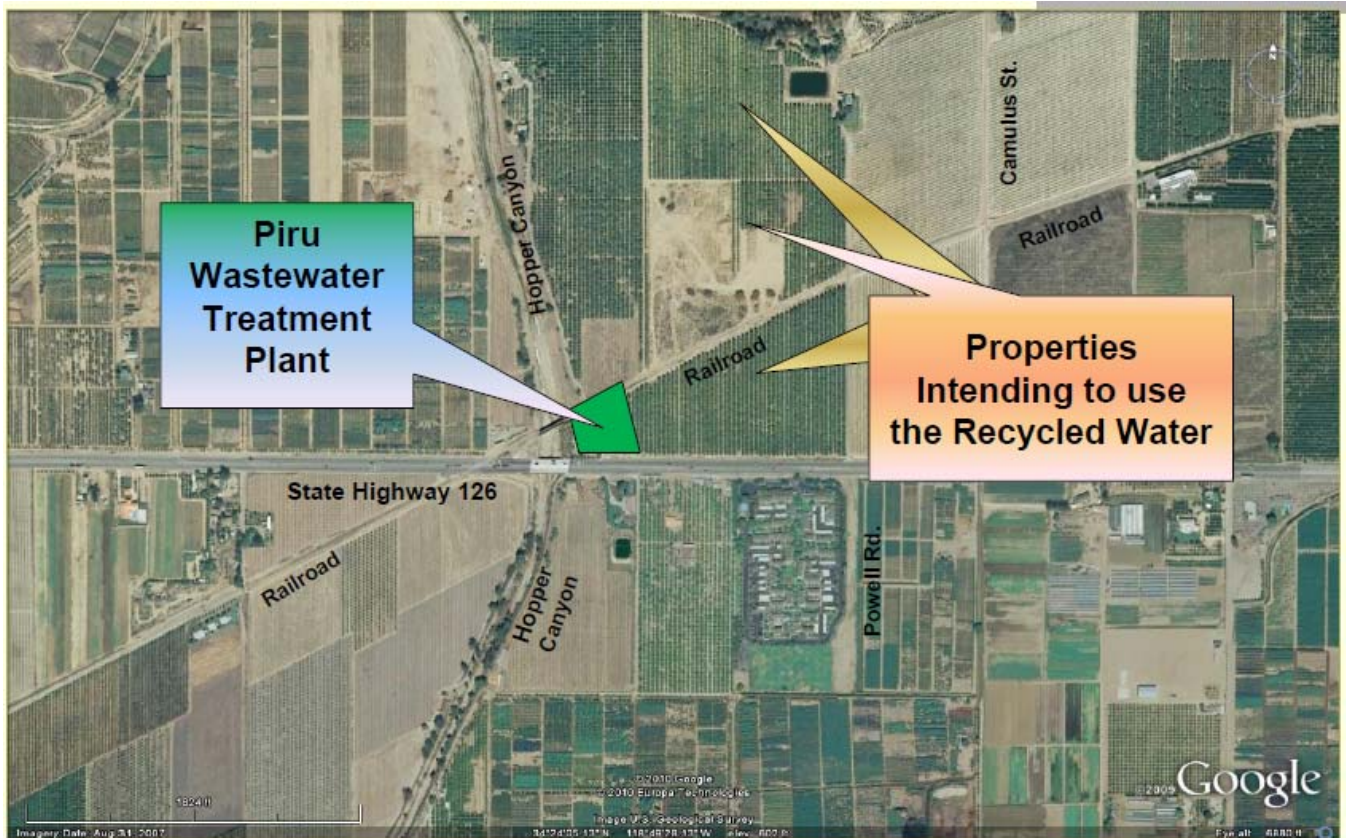


Figure 10: Site Location Map

## II. Work Plan

Tasks necessary to construct the Piru Treatment Plant Tertiary Upgrade are presented in Table 7.

Table 7: Work Plan for VCWWD No. 16 Piru Treatment Plant Tertiary Upgrade

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration  Description: Prepare and submit invoices.  Deliverables: Invoices
Task 2: Labor Compliance Program  Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b).  Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.
Task 3: Reporting  Description: Prepare quarterly and final reports as specified in the Grant Agreement.  Deliverables: Quarterly and final reports as specified in the Grant Agreement.
Task 4: Assessment and Evaluation  Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. Reporting will be addressed in Task 3.  Deliverables: Monitoring Plan.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 5: Land Purchase/Easement  Description: The land for this project was purchased in 2009 and is owned by VCWWD No. 16. No additional land or right-of-way acquisition is required.  Deliverables: Not applicable.
<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
Task 6: Design  Description: This project will be a D/B project. The final design will be completed by the selected D/B team's engineer in accordance with requirements defined in the Request for Proposals (RFP).  Deliverables: Plans and specifications prepared by D/B engineer.



#### Task 7: Environmental Documentation

Description: A CEQA MND for the upgrade/expansion of the PWWTP was certified by the Board of VCWWD No. 16 on 28 September 2004. An Addendum to the MND for PWWTP Upgrade/Expansion Project was adopted by the Board on 7 August 2008. The Addendum included the construction of the Tertiary Upgrade. Greenhouse gas mitigation measures are also addressed in the Addendum.

Deliverables: Completed CEQA documents.

#### Task 8: Permitting

Description: Permits will be obtained prior to construction per the D/B specifications:

- SWRCB: Coverage under General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, if applicable.
- RWQCB: An Amended Report of Waste Discharge (ROWD) will be submitted to obtain updated WDRs for the treatment system upgrade.
- RWQCB: A reclaimed water permit that incorporates California Department of Public Health CDPH requirements.

Deliverables: Copies of permits.

### **Budget Category (d): Construction/Implementation**

#### Task 9: Construction Contracting

Description: To implement a D/B contracting approach, prospective construction contractors will be invited to submit qualifications and a proposal through a RFQ/RFP process, and proposals will be evaluated by an independent technical review committee. The recommended proposal will then be presented to the Board of VCWWD No. 16 for award.

Deliverables: Notice of Award and contract issued to Contractor.

#### Task 10: Construction

Description: The D/B team will construct the Piru Tertiary Upgrade in accordance with the final plans and specifications.

Deliverables: Record drawings, construction photos.

### **Budget Category (e): Environmental Compliance/Mitigation/Enhancement**

#### Task 11: Environmental Compliance/Mitigation/Enhancement

Description: Environmental compliance and mitigation measures cited in the CEQA MND will be implemented, as appropriate.

Deliverables: Reporting of mitigation in quarterly reports.

<b>Budget Category (f): Construction Administration</b>
Task 12: Construction Administration
Description: During the construction phase, Ventura County Public Works Agency Water and Sanitation Department staff will provide construction management and administration, including daily on-site inspections. Any specialized inspections, such as those for welding and coating, will be performed by qualified consultants.
Deliverables: Included in Task 10, Construction.



### III. Other Required Information

#### **Procedures**

Development and issuance of the construction contract will be done using County of Ventura, Public Works Agency contracting procedures. The County Board of Supervisors will authorize all contracts for this project.

#### **Standards**

The project will be constructed in accordance with the appropriate standards, including those from ASTM, American Waterworks Association (AWWA), and pertinent construction industry guidance. The project will also be constructed in accordance with applicable sections of the California Health and Safety Code.

#### **Development of Monitoring Plans**

A Monitoring Plan will be prepared and submitted to DWR. Monitoring will be performed as part of the monitoring at the PWWTP.

#### **Status of Acquisition of Land or Right-of-Way**

The land for this project was acquired in 2009 and is owned by VCWWD No. 16.

#### **Building Materials, Project Design Status, and Bid Solicitation Efforts**

Building materials to be used for construction of the upgrade will be identified through the RFP process and construction contract documents. The design will be developed by the engineer on the designated D/B team. VCWWD No. 16 plans to solicit D/B bids through an RFQ and RFP process after grant award.

#### **Permits**

Construction-related permits will be obtained per the D/B specifications, potentially including coverage under the SWRCB Construction General Permit for discharges of stormwater associated with construction activity. Amended WDRs will be pursued from the RWQCB to reflect the change in the discharge approach. RWQCB will also be asked to provide a reclaimed water permit, incorporating California

Department of Public Health (CDPH) requirements.

#### **Status of Preparation and Completion of Environmental Requirements**

Refer to Task 7 for status of CEQA documentation. During construction, environmental mitigation measures will be implemented in accordance with the MND.

#### **Work Items to Complete GWMP**

United Water Conservation District, the regional water management agency, developed and adopted a Groundwater Management Plan (GWMP) for the Piru area in 1996. This information is updated in the 2008 Piru and Fillmore Basins Annual Groundwater Conditions Report, as cited above and available in Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf in BMS).

#### **Submittals to Granting Agency**

Deliverables such as plans, specifications, quarterly reports, and final report will be submitted to DWR as required.

#### **Design Plans and Specifications**

The project will be accomplished through a D/B process. Contractors will present a D/B proposal for evaluation, and a contractor will be selected by a D/B evaluation team.



## The Nature Conservancy Natural Floodplain Protection Program

### The Nature Conservancy

Contact: EJ Remson  
(626) 403-9755  
[eremson@tnc.org](mailto:eremson@tnc.org)

### Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☐ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☒ Effectively integrate water management with land use planning
- ☒ For Flood Management - projects that provide multiple benefits

### Statewide Priorities

- ☐ Drought preparedness
- ☐ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☒ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

### CALFED

#### Primary Objectives

- ☐ Ecosystem quality
- ☐ Water supply
- ☐ Water quality
- ☐ Levee system integrity

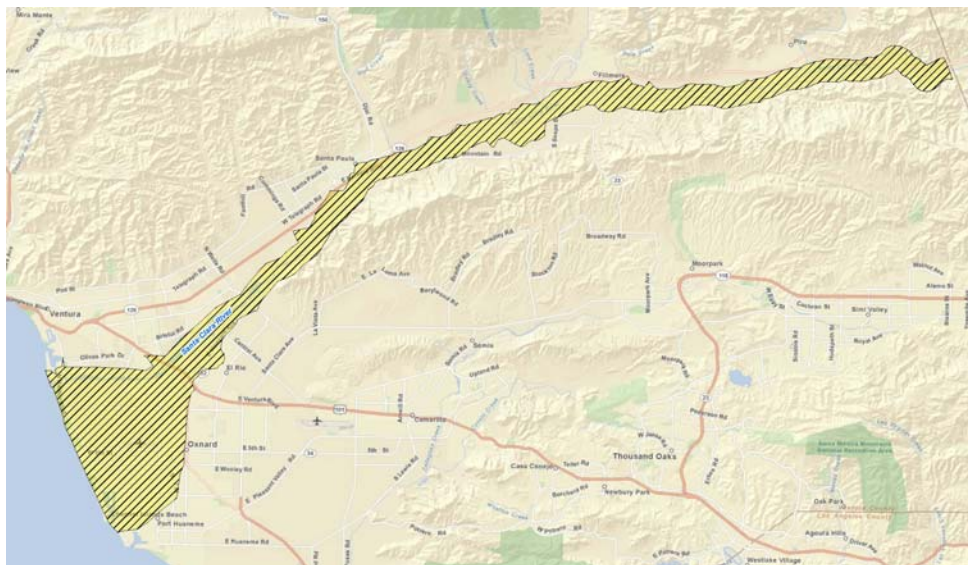
### Project Description

The Nature Conservancy (TNC) plans to implement the Natural Floodplain Protection Program (NFPP) to preserve a critical section of the remaining floodplain in the Santa Clara River Watershed. This will be accomplished by establishing a Floodplain Conservation Zone (FCZ), where private property easements will be acquired as a means to prevent future development. The NFPP is targeting acquisition of 225 acres of easement within the 500-year floodplain of the Santa Clara River Watershed, which encompasses approximately 4,100 acres. TNC anticipates that, with acquisition of sufficient easements in key areas of the 500-year floodplain, the risk of development on the remaining lands will be substantially reduced, and therefore it will not be necessary to acquire easements for the entire floodplain in order to meet protection objectives. Portions of the 500-year floodplain have already been protected by TNC and through other conservation programs.

The planning process to acquire easements has been facilitated by the Floodplain Working Group (FWG), a group of stakeholders that includes:

- Ventura County Watershed Protection District.
- Ventura County Farm Bureau.
- Ventura County Resource Conservation District.
- Natural Resources Conservation Service.
- TNC.

The 225 acres of flood (inundation) easements to be purchased by TNC will be primarily working farmland; therefore, existing land uses will not be disrupted by the easements. Farmers will receive compensation for preserving their property as part of the functioning floodplain, while giving up the rights to develop the land. This will be recorded on the deed for the property. The value of the easements will be established through negotiations with individual landowners. Participation will be completely voluntary. The prospective areas for acquisition are within the 500-year floodplain.



NFPP Location Map



## The Nature Conservancy Natural Floodplain Protection Program

### Watershed Coalition of Ventura County Primary Objectives

- ☐ Reduce dependence on imported water
- ☐ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☒ Protect people, property, and the environment from adverse flooding impacts
- ☒ Protect and restore habitat and ecosystems in our watersheds
- ☒ Provide water-related public access, recreational, and educational opportunities

### Project Benefits

The NFPP will bring a number of benefits including:

- **Effective flood control.** Levees and other flood control structures will never be needed, and waters retained on the easement lands will reduce the need for downstream control structures as well.
- **Cost savings.** The easements will be far less expensive than the cost to plan, build, and maintain levees. Ventura County property owners will avoid flood assessments or other taxes for those facilities.
- **Direct benefits for floodplain landowners.** Participating landowners will receive compensation for their development rights. This is an incentive to landowners to continue using their property for agriculture, a \$1.5 billion dollar industry in the County.
- **Public policy precedent.** As the NFPP proceeds, it is anticipated that the benefits of floodplain preservation will far outweigh the costs of levee construction; therefore, Ventura County is expected to consider adopting a general policy of providing flood protection in the Santa Clara River and other watersheds through floodplain preservation, rather than allowing development and constructing conventional flood control infrastructure to protect the development.
- **Water quality improvement.** The floodplain, including existing vegetated wetlands, serves as a natural filtration system, reducing the pollutant load associated with stormwater and non-stormwater runoff. Structural flood control devices do not provide this function.
- **Groundwater recharge.** Maintaining the broad riverbed and its adjacent floodplain will maximize groundwater recharge. The rate of recharge through the floodplain is much higher than it would be in developed, paved areas. Construction of levees would further reduce the recharge area. Groundwater recharge is essential to ensure that adequate groundwater can be pumped for agricultural, municipal, and other uses.
- **Habitat preservation.** The floodplain supports significant natural aquatic and riparian habitats that will be preserved through easement acquisition.

### Cost and Schedule

Grant funding requested under Proposition 84 for the NFPP is \$3 million. An additional \$1.5 million will be obtained from other funding sources to meet the total estimated cost of \$4.5 million.

Identification and prioritization of floodplain parcels is underway and should be substantially complete by September 2011. Priority parcels are those that are opposite existing levees and/or in the immediate vicinity of urban areas where the potential benefits are the greatest. Following parcel identification, property owners will be contacted, and negotiation of specific easement terms will continue throughout 2012. Transactions funded under this grant are expected to close by the end of 2012.



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

#### I. The Nature Conservancy Natural Floodplain Protection Program

##### Project Description

The Nature Conservancy (TNC) is planning to implement the Natural Floodplain Protection Program (NFPP). This program will preserve critical sections of the remaining 500-year floodplain in the Santa Clara River Watershed by establishing a Floodplain Conservation Zone (FCZ), in which private property easements will be acquired as a means to prevent future development.

The NFPP is targeting acquisition of 225 acres of easement in the 500-year floodplain of the Santa Clara River Watershed, which covers approximately 4,100 acres. TNC anticipates that with acquisition of sufficient easements in key areas of the 500-year floodplain, the risk of development on the remaining lands will be substantially reduced, and therefore it will not be necessary to acquire easements across the entire floodplain. Portions of the 500-year floodplain have already been protected by TNC and under other conservation programs.

The process will be facilitated by the Floodplain Working Group (FWG), a group of stakeholders that includes:

- Ventura County Watershed Protection District (VCWPD)
- Ventura County Farm Bureau (Farm Bureau)
- Ventura County Resource Conservation District (VCRCD)
- Natural Resources Conservation Service (NRCS)
- TNC.

These organizations have all signed a Memorandum of Understanding and contributed funds or in-kind services toward maintaining local floodplains. The NFPP approach was developed by the FWG and is being implemented by the TNC. The FWG stakeholder relationship is critical to the success of the NFPP because it is a forum in which the diverse

interests of agriculture, ecosystem restoration, and flood management come together to solve problems of common interest.

The 225 acres of flood (inundation) easements that will be purchased by TNC will be primarily working farmland, where the existing land uses will not be disrupted by easements. Farmers will receive compensation for preserving their property as part of the functioning floodplain, while giving up the rights to develop the land which will be documented on the deed for the property. The value of the easements will be established through negotiations with individual landowners. Participation will be completely voluntary, and there will be no penalty for not participating.

Protecting the floodplain from development will ensure that the land can continue to provide natural flood control for high river flows at relatively low cost, with no infrastructure requirements, and no need for future construction and maintenance of levees. At the same time, the easements will preserve an important area of natural aquatic and riparian habitat. Preventing development assures that future property damage due to flooding will be avoided both upstream and downstream. This eliminates the need for construction of additional flood control structures that are costly to permit, construct, and maintain.

The NFPP is envisioned as an important first step in a long-term floodplain protection strategy for the Santa Clara River Watershed. Future easements will be planned, funded and implemented by TNC, and, potentially, in the future by other FWG members.

##### Goals and Objectives

The primary goals and objectives of the NFPP are as follows:

- **Protect people, property, and the environment from adverse flooding impacts.** As outlined above, the NFPP offers an effective approach to flood management.
- **Maintain groundwater recharge to maximize local supply.** The broad river bed and its adjacent floodplain allow water to move slowly and stand, often for long

periods of time. The water percolates through the soil and reaches groundwater aquifers.

- **Maintain water quality within the Watershed.** The floodplain, including existing riparian buffers and vegetated wetlands, serves as a natural filtration system, reducing the pollutant load carried by stormwater and non-stormwater runoff (e.g., nutrients, chromium, copper, selenium, trace organic compounds, pesticides, and some pathogens). Levees would remove riparian habitat, eliminating the treatment process.
- **Protect and restore ecosystems.** Permanent floodplain protection is sought as a means to avoid levee construction, thereby preserving existing aquatic and riparian habitat, including numerous state endangered or threatened species.
- **Preserve agriculture.** The easements provide an incentive to landowners to continue using their property for agriculture, a \$1.5 billion dollar industry in the County.
- **Provide water-related access and education opportunities.** In the broader context of the Santa Clara River floodplain, the NFPP will support continuity of educational and recreation opportunities in the Watershed.

## Purpose and Need

The detrimental impact of watershed and floodplain urbanization is evident along the Los Angeles, San Gabriel, and Santa Ana Rivers, which are now channelized. In many areas, all habitat function has been lost. In contrast, the 84-mile Santa Clara River is the last major river still in a relatively natural state in Southern California. The river has a watershed of over 1,600 square miles, covering portions of Ventura and Los Angeles Counties. Some 18 federal and/or state endangered or threatened species have been documented on the river, and another 20 rare species of concern spend at least some of their lifecycle on the river (State Coastal Conservancy 2005).

Over the last decade, numerous groups have worked together to preserve the Santa Clara River, and about 13 miles (3,000 acres) of the approximately 40 miles of riverfront property,

including some 500-year floodplain, in Ventura County are preserved. However, existing conservation programs do not permit acquisition of land for the primary purpose of retaining the floodplain, or acquisition of inundation (flood) easements over existing agricultural land in this watershed.

If the functioning floodplain is not conserved and development proceeds, there is a high risk that flooding will impact people and property. Typically, to mitigate this risk, levees are constructed to channelize the waterway. These facilities force greater volumes of water to move through a narrower river cross section, which raises the water velocity. High flows of the Santa Clara River have the potential to cause significant damage by inundating poorly sited areas of urban growth. These flows also tend to strip the riverbed of all vegetation and useable wildlife habitat. When there is less time and a much smaller floodplain area for groundwater percolation to occur, the risk of downstream flooding is exacerbated, spurring construction of still more levees.

The portions of the Santa Clara River where floodplain development has already occurred illustrate these risks and associated costs. In early 2010, the Federal Emergency Management Agency (FEMA) revised its Flood Insurance Rate Maps (FIRM) for Ventura County. The new maps show that levees adjacent to the cities of Oxnard and Fillmore along the river are no longer adequate to protect the urbanized areas. The County would need to spend well over \$100 million dollars to upgrade the existing levees. The increase in the flood hazard is largely attributed to urbanization and loss of upstream floodplain. If the remaining floodplain is not protected, the problem may be exacerbated to the point where even the upgraded levees will be insufficient.

At a time when water agencies and their communities have limited resources, the NFPP provides the most cost effective approach to attain the needed flood control results, while also addressing a host of related high-priority water supply, water quality and ecosystem challenges. The immediate and long-term savings from avoided flood control infrastructure projects, considering the costs of planning, obtaining permits, building and maintaining levees, cannot be ignored. (As a point of reference, VCWPD spends about



80 percent of their budget on maintaining flood control structures.<sup>1)</sup> The NFPP approach translates to economic benefits for property owners, who would be subject to flood assessments or other taxes to pay for the infrastructure.

Although flood control through floodplain preservation is not a new idea, this approach has not been consistently adopted in the local planning process. With a strong precedent from the NFPP, Ventura County may be able to justify adopting a general policy of meeting the flood protection need through floodplain preservation, rather than allowing development to proceed assuming it will be protected through conventional flood control infrastructure.

The NFPP would also facilitate groundwater recharge. Groundwater supplies have been severely depleted or affected by high salt concentrations in many portions of the Santa Clara River Watershed, as indicated by the need for projects such as the United Water Conservations District's (UWCD) Seawater Barrier Pilot Well (SC-9) within this grant proposal. The rate of volume of groundwater recharge occurring through the floodplain is much higher than through developed, paved areas or channelized waterways.

At the same time, the floodplain and existing vegetated wetlands provide an important natural filtration system for stormwater and non-stormwater runoff that will eventually percolate to groundwater or discharge to the river. Natural processes will reduce pollutant loads (e.g., nutrients, metals, trace organic compounds, pesticides, and some pathogens). Water quality in the watershed is already stressed, as evidenced by the mandate for agricultural users to reduce pollutant levels in runoff and the fact that several reaches of the Santa Clara River do not meet federal water quality standards. Therefore the floodplain's pollutant control properties are needed more than ever.

### **Integrated Elements of Project**

The NFPP supports ongoing TNC restoration and land acquisition work on the Santa Clara River, one of the last remaining natural waterways in Southern California.

The NFPP has similar objectives to the Ojai Meadows Ecosystem Restoration Final Phase (V-5) to be implemented by the Ojai Valley Land Conservancy. Both projects will preserve and enhance existing ecosystems in a manner that improves stormwater management and facilitates groundwater recharge. The NFPP will provide these benefits on a larger scale.

Furthermore, the NFPP links to several other existing programs and projects with objectives related to Santa Clara River floodplain conservation, including:

- **California State Coastal Conservancy (SCC), Santa Clara River Parkway Program.** SCC has spent roughly \$15 million on implementation of this program. Conserved river habitat extends from the ocean to the confluence with Sespe Creek.
- **UWCD Water Management.** UWCD maintains a diversion on the river that supplies water to farms on the Oxnard plain. The continuous natural river flow regime, which is aided by the presence of natural floodplain landscapes such as the NFPP, helps to ensure that flows are adequate to allow UWCD diversions within permitted limits.
- **National Oceanographic and Atmospheric Administration (NOAA) Steelhead Recovery Plan.** NOAA is responsible for recovery of the endangered Southern Steelhead fish. NOAA prepared a recovery plan for the species and identified the Santa Clara River a high priority. Floodplain conservation, as planned by the NFPP, helps to maintain optimal natural conditions.

### **Completed Work**

Significant preparation for the NFPP has already taken place. This includes groundwork for identifying properties that will be targeted for easement acquisition. Specifically:

- TNC, SCC, and the California Department of Fish and Game (DFG) have developed conservation plans that identify priority conservation areas as described in Existing Data and Studies section below.

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<sup>1</sup> Comment by Norma Camacho, Director VCWPD to E.J. Remson.



- VCWPD has been using current FEMA data and hydrologic models to analyze specific potential floodplain acquisitions as they become available.
- SCC has completed a floodplain restoration feasibility study for the lower river, and is currently preparing the second phase of the study that will identify portions of the floodplain that, if conserved, will provide the greatest overall benefits.

Together, these studies will be the basis for setting priorities for easement acquisition. As indicated by the level of prior effort, the NFPP has, and will continue to benefit from a highly experienced implementation team, as well as significant conservation investments that have been made over the last 10 years.

In particular, past research has highlighted the connection between the river and its adjacent land uses. As noted above, other rivers in the region that have already been channelized clearly show that watershed urbanization can lead to destruction of natural river functions and loss of aquatic and riparian habitat.

As part of TNC's ongoing habitat restoration program, TNC is currently in the process of acquiring three properties on the river that will further increase the capacity of the floodplain to support the activities of the NPFF. TNC will be able to restore the aquatic and/or riparian habitat, as well as the floodplain benefit of these lands.

### Existing Data and Studies

Many relevant studies have been completed for participating agencies, including the following:

For TNC:

- *Conservation Plan for the Lower Santa Clara River Watershed and Surrounding Areas*. 2008. TNC.  
[http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWM\\_Planning/SCRW\\_Docs/LSCRWP-EXTERNAL-final080108.pdf](http://portal.countyofventura.org/portal/page/portal/ceo/divisions/ira/WC/Library/IRWM_Planning/SCRW_Docs/LSCRWP-EXTERNAL-final080108.pdf)
- *Santa Clara River Steelhead Trout: Assessment and Recovery Opportunities*. 2005. Stoecker and Kelley.  
<http://santaclarariverparkway.org/wkb/scrbiblio/stoeckerkelley2005>

- *Minimum Flow Requirements for Southern Steelhead Passage on the Lower SCR*. 2006. USCB.  
[http://santaclarariverparkway.org/wkb/scrbiblio/harrison\\_etal\\_2006](http://santaclarariverparkway.org/wkb/scrbiblio/harrison_etal_2006)
- *Hydraulic Impact Analysis of the Santa Clara River Floodplain Protection Program*. 2010. VCWPD. (Exhibit 9-1 of Attachment 9 found as Att9\_IG1\_DEeduc\_2of2.pdf on BMS)

For State Coastal Conservancy:

- *Santa Clara River Parkway Plan*. 2000. SCC.
- *Santa Clara River Parkway Floodplain Restoration Feasibility Study*. 2008. Stillwater Science.  
<http://santaclarariverparkway.org/newswkb/wkb/scrbiblio/techreportreference.2008-11-03.4888377697>
- *Santa Clara River Parkway Floodplain Restoration Feasibility Study: Assessment of Geomorphic Processes*. 2007. Stillwater Sciences.  
<http://santaclarariverparkway.org/wkb/scrbiblio/stillwater2005/?searchterm=>

For California Department of Fish and Game:

- *Steelhead Smolt Survival in the Santa Clara and Santa Ynez Estuaries*. 2008. Kelley.  
<http://santaclarariverparkway.org/wkb/scrbiblio/techreportreference.2008-09-15.2561780478>

For County of Ventura:

- *Santa Clara River Enhancement and Management Plan*. Final Document. 2005. AMEC.  
<http://www.santaclarariverparkway.org/wkb/scrbiblio/scrempfinal>

For NOAA:

- *Southern California Steelhead Recovery Plan (Review Draft)*. 2009. National Marine Fisheries Service.  
[http://swr.nmfs.noaa.gov/recovery/So\\_Cal/Southern\\_California\\_Steelhead\\_Public\\_Draft\\_Recovery\\_Plan.pdf](http://swr.nmfs.noaa.gov/recovery/So_Cal/Southern_California_Steelhead_Public_Draft_Recovery_Plan.pdf)

## Project Map

A map showing the prospective properties within the 500-year floodplain is Figure 11.

## Project Timing and Phasing

The NFPP is a stand-alone project that is envisioned as an important initial step of a longer-term floodplain protection project for the Santa Clara River Watershed.

Identification and prioritization of floodplain parcels is underway and should be substantially complete by September 2011. The information

described in Completed Work will be considered along with the proximity of the property to existing levees and to urban areas to target the properties with the highest potential flood benefits. Following parcel identification, property owners will be contacted, and negotiation of specific easement terms will continue throughout 2012. Upon successful negotiation, contract documents will be signed to complete easement acquisitions and deeds recorded. Easement transactions funded under this grant are expected to close by the end of 2012.

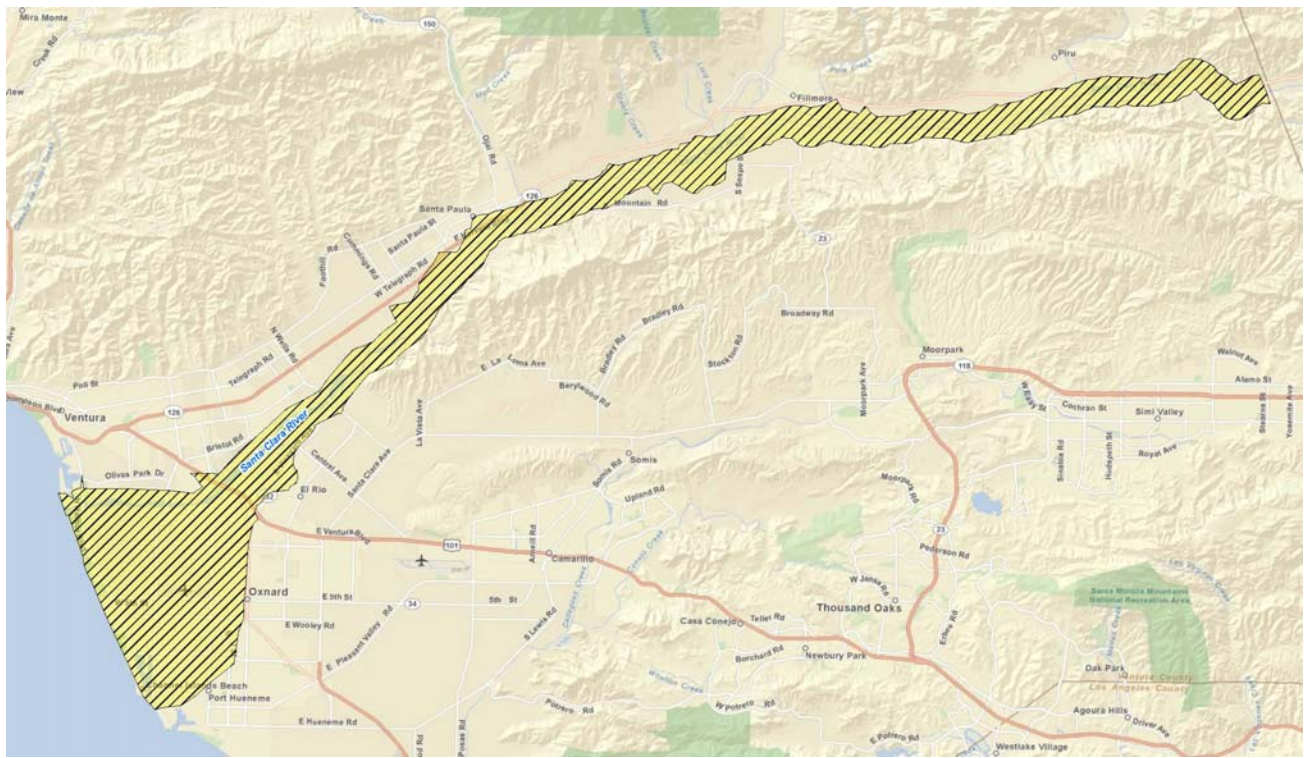


Figure 11: NFPP Potential Easement Acquisition Area

## II. Work Plan

Tasks necessary to implement the Floodplain Protection Program are described in Table 8.

Table 8: Work Plan for TNC Natural Floodplain Protection Program

<b>Budget Category (a): Direct Project Administration Costs</b>
<p>Task 1: Administration</p> <p>Description: Prepare and submit invoices. Invoices will be submitted for payment to escrow account prior to closing on acquired easements as is customary with other State grant programs that involve property transactions.</p> <p>Deliverables: Invoices.</p>
<p>Task 2: Labor Compliance Program</p> <p>Description: This project does not include a labor component.</p> <p>Deliverables: Not applicable to this project.</p>
<p>Task 3: Reporting</p> <p>Description: Prepare quarterly and final reports as specified in the Grant Agreement.</p> <p>Deliverables: Quarterly and final reports as specified in the Grant Agreement.</p>
<p>Task 4: Assessment and Evaluation</p> <p>Description: TNC, SCC, and the FWG are in the process of identifying and prioritizing parcels to be protected for the floodplain protection project. This prioritization will be based in part on existing work completed by SCC and the VCWPD. TNC will prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table.</p> <p>Deliverables: Floodplain parcel prioritization plan and Monitoring Plan.</p>
<b>Budget Category (b): Land Purchase/Easement</b>
<p>Task 5: Land Purchase/Easement</p> <p>Description: A draft easement will be prepared to be used as the basis for negotiating final easement terms with individual landowners.</p> <p>Deliverables: Final easement agreements.</p>

<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
-------------------------------------------------------------------------------------

Task 6: Environmental Documentation
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Description: This project is exempt under CEQA under two categories: Acquisition for Wildlife Conservation Purposes (Class 13) and Open Space Contracts of Easements (Class17). If any smaller easements are acquired, they will also be exempt under Small Habitat Restoration Projects (Class 33), which applies to parcels of 5 acres or less. A Notice of Exemption will be filed with the Ventura County Clerk/Recorder.
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Deliverables: Notice of Exemption.
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<b>Budget Category (d): Construction/Implementation</b>
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Not applicable.
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<b>Budget Category (e): Environmental Compliance/Mitigation/Enhancement</b>
-----------------------------------------------------------------------------

Not applicable.
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<b>Budget Category (f): Construction Administration</b>
---------------------------------------------------------

Not applicable.
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### III. Other Required Information

#### Procedures

TNC, as a member of the FWG, will take the lead on implementation of the NFPP. FWG members have entered into a formal Memorandum of Understanding (MOU), and have all contributed funds to develop and implement FCZ. TNC will work closely with the VCWPD to analyze and prioritize floodplain parcels for the NFPP. Prior SCC studies will also be used in selecting land to be targeted in this project.

#### Standards

This is not a construction project, and there are no standardized methods for implementation. However, TNC has standard methods for land and easement acquisition. In addition, there are emerging criteria for ranking land for floodplain protections. Criteria to be included in the selection of parcels include the following:

- Total amount of floodwater retained.
- Duration of floodwater retention.
- Probability of being developed (e.g., located near existing development).
- Future cost of protecting land if developed.
- Potential for water percolation (ground water recharge).
- Potential for erosion due to flooding.
- Presence of wetland, riparian, and other habitat.
- Frequency of flooding.
- Willing seller (of easement rights).
- Potential to protect existing flood facilities.
- Potential for water quality benefits via natural processes.

When easements are formally transferred, a floodplain conservation easement will be prepared and recorded on the property.

#### Status of Acquisition of Land

TNC, with the support of various partners, has acquired nearly 3,000 acres of land in and along the Santa Clara River for habitat preservation and restoration including some parcels located within the 500-year floodplain. Therefore, systems are already in place to implement the acquisition of the floodplain protection program easements. Once priority easement acquisition parcels are identified acquisition can begin immediately.

#### Project Design Status

The design of the NFPP involves selection of parcels that will provide the greatest flood protection and ancillary benefits. The parcel selection process involves applying the selection criteria cited in Standards to parcels located within the existing 500-year floodplain, as defined by the 2010 FEMA FIRM. This analysis will be completed using existing hydrologic modeling, data available to VCWPD, and GIS-based data available from existing TNC and SCC conservation plans.

The initial work to combine these datasets is already underway, and preliminary results are expected prior to the grant award date of June 2011.

#### Permits

No permits are required to acquire these easements. The NFPP is exempt from CEQA based on categorical exemptions for Acquisition for Wildlife Conservation Purposes (Class 13), Open Space Contracts of Easements (Class 17) and possibly Small Habitat Restoration Projects (Class 33), which applies to parcels of 5 acres or less. As noted in the Work Plan, a Notice of Exemption will be filed with the Ventura County Clerk.

#### Work Items to Complete GWMP

Portions of the project area are located within groundwater basins managed by the Fox Canyon Groundwater Management Agency (FCGMA) and UWCD. The Fox Canyon Groundwater Management Plan was adopted by FCGMA in May 2007 and is found in Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf in BMS).

UWCD's activities related to implementation of AB3030 Groundwater Management Plans in the

Santa Paula, Fillmore, and Piru areas of the Santa Clara Watershed can be found in Exhibit 1-2 to Attachment 1 (Att1\_IG1\_Eligible\_3of5.pdf on BMS).

### **Submittals to Granting Agency**

Quarterly and final reports will be submitted as specified in the Grant Agreement.

### **Design Plans and Specifications**

While no design plans are needed for this project, a parcel-level prioritization of candidate properties for easement acquisition will be prepared. This plan will be based on existing data already compiled by TNC, SCC, and the VCWPD. The plan will be completed as shown on the project schedule.



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**Ojai Valley Land Conservancy**  
**Ojai Meadows Ecosystem Restoration Final Phase**

**Ojai Valley Land  
Conservancy**

Contact: Brian Stark  
(805) 649-6852 x3  
[Brian@ovlc.org](mailto:Brian@ovlc.org)

## Program Preferences

- ☒ Include Regional Projects/Programs
- ☒ Integrate water management within hydrologic region
- ☒ Effectively resolve significant water-related conflicts within or between regions
- ☐ Contribute to attainment or one or more objectives to CALFED
- ☐ Address critical water supply/quality needs of DAC
- ☒ Effectively integrate water management with land use planning
- ☒ For Flood Management - projects that provide multiple benefits

## Statewide Priorities

- ☐ Drought preparedness
- ☐ Use and reuse water more efficiently
- ☒ Climate change response actions
- ☒ Expand environmental stewardship
- ☒ Practice integrated flood management
- ☒ Protect surface water and groundwater quality
- ☐ Improve tribal water & natural resources
- ☐ Ensure equitable distribution of benefits

**CALFED**

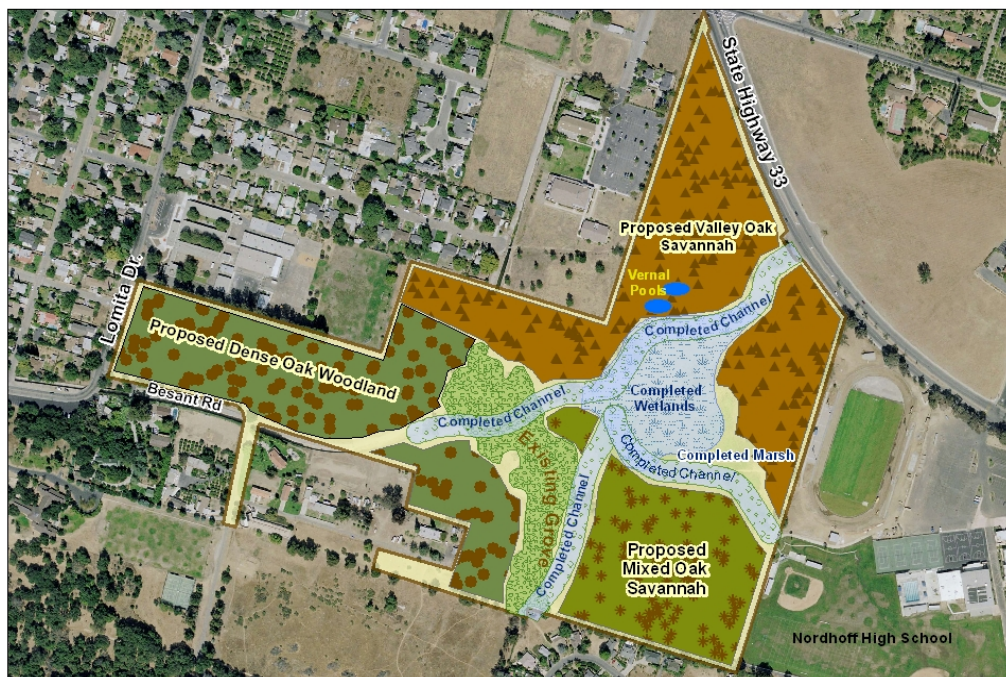
### Primary Objectives

- ☐ Ecosystem quality
- ☐ Water supply
- ☐ Water quality
- ☐ Levee system integrity

## Project Description

Following successful restoration of wetlands in the Ojai Meadows Preserve (OMP), the Ojai Valley Land Conservancy (OVLC) now plans to restore 41 acres of upland and transitional habitats adjacent to the wetlands as shown on the figure below. This will be the final phase of OMP restoration, and is needed to place the recently restored wetlands in an ecological context that is self-sustaining. The areas that will be restored in this final phase are currently vegetated with non-native plants and weeds. Once revegetated with native trees and plants, they will provide habitat and serve as a buffer zone to naturally stabilize eroding hillsides and integrate with the restored wetlands. Planting will include:

- 20 acres of native grasslands and valley oak savannah that will reduce erosion from the uplands that could threaten the wetlands.
- 20 acres of coast live oak woodlands to provide vertical structure and hunting areas for birds.
- 1 acre of coastal sage scrub interspersed within the oak woodlands for diversity and habitat transition.
- Additional plantings in the existing wetlands channels to provide appropriate plant density which will enhance filtration and treatment of the stormwater entering the wetlands.



Ojai Meadows Preserve  
Habitat Restoration and Flood Control Plan  
Proposed Oak Woodlands and Grasslands

## OMP Site Map



## Ojai Valley Land Conservancy Ojai Meadows Ecosystem Restoration Final Phase

### Watershed Coalition of Ventura County Primary Objectives

- ☐ Reduce dependence on imported water
- ☒ Protect, conserve, and augment water supplies
- ☒ Protect and improve water quality
- ☒ Protect people, property, and the environment from adverse flooding impacts
- ☒ Protect and restore habitat and ecosystems in our watersheds
- ☒ Provide water-related public access, recreational, and educational opportunities

The revegetation effort will protect the wetlands and support the associated stormwater management and flood control features developed during the initial phase of OMP restoration. The prior phase of work has been very successful both in terms of meeting flood control objectives and stimulating habitat development. With this final phase of work, areas of OMP surrounding the wetlands will be enhanced and stabilized, which will reduce the potential for upland erosion and wetland sedimentation. The restored habitat throughout the preserve will also enhance the visitor experience.

### Project Benefits

- This final phase of OMP restoration will have a number of significant benefits for the ecosystem and OMP visitors:
- The expanded habitat will attract birds and other wildlife, providing further recreational opportunities for viewing from existing trails in this popular preserve. In addition, the coast live oak woodlands will provide shaded areas, making the preserve especially attractive during the warm summer months.
- Revegetation will provide protection from soil erosion, reducing the potential for wetland sedimentation. By integrating the wetlands with the surrounding environment, long-term maintenance needs for the wetlands will be minimized. This will further help to sustain the stormwater management and flood control features developed during the initial phase of the project.
- The wetlands will continue to provide stormwater quality treatment and buffering capacity, thereby reducing the nutrient and pollutant load entering the Ventura River. Considering that portions of the Ventura River downstream of the project site are on the U.S. Environmental Protection Agency's 303(d) list of impaired water bodies due to algal growth, nutrient management is imperative.
- Stormwater held on the property in upland areas and wetlands will promote infiltration and groundwater recharge, which is urgently needed in the Ojai Valley due to its dependence on groundwater for a reliable municipal and agricultural supply.

### Cost and Schedule

Grant funding requested under Proposition 84 for the Ojai Meadows Ecosystem Restoration Final Phase is \$500,000. An additional \$127,000 will be obtained from other funding sources to meet the total estimated project cost of \$627,000.

California Environmental Quality Act documentation has already been completed for the project in the form of a mitigated negative declaration. Project plans have been developed, and construction contracting will begin shortly after anticipated grant award in June 2011. Removal of non-native grasses and weeds is tentatively scheduled for the fall 2011, followed by the initial planting effort. A second planting, if necessary, would then occur in 2012. Weed management and performance monitoring will then be performed until the new habitat is well-established and self-sustaining, an estimated period of 3 years.



## Watersheds Coalition of Ventura County Proposition 84 IRWMP Implementation Grant

### Attachment 3 – Work Plan

#### I. Ojai Valley Land Conservancy Ojai Meadows Ecosystem Restoration Final Phase

##### Project Description

The Ojai Meadows Ecosystem Restoration, Final Phase, will complete a two-phase project that was initiated in 2006 to improve stormwater management and flood control by creating a wetlands in the Ojai Meadows Preserve (OMP). The OMP land is owned by the Ojai Valley Land Conservancy (OVLC) and managed for public access and habitat creation and protection.

In this phase of work, OVLC plans to restore the remaining 41 acres of upland and transitional habitats within the OMP to complement the newly-restored wetland features. This will serve to place the wetlands in an ecological context that is self-sustaining. The additional areas, which are currently vegetated with non-native plants and weeds, will be revegetated with native plants and trees to develop habitat and provide a buffer zone that will naturally stabilize eroding hillsides and integrate with the restored wetlands. The plan for revegetation will entail planting:

- 20 acres of native grasslands and valley oak savannah that will reduce erosion from the uplands that could threaten the wetlands.
- 20 acres of coast live oak woodlands and live oak savannah to provide vertical structure and hunting areas for birds.
- 1 acre of coastal sage scrub interspersed within the oak woodlands for diversity and habitat transition.
- Additional plantings in the existing wetlands channels to enhance filtration and treatment of the stormwater entering the wetlands.

The project also provides for weed management by mowing or hand weeding, removal of some non-native plants, and performance monitoring until the new habitat is well-established and self-sustaining, an estimated period of three years.

Native oak and grassland habitats are particularly important to the ecological functioning of the site because they provide the vertical structure and hunting ground necessary for sustainable bird populations, including migratory birds on the Pacific Flyway. Other benefits of revegetation include improved stormwater filtration, which will improve water quality of the wetlands, and erosion control. By planting with the same species found together in nature, the project will create plant communities that are complementary and lead to long-term sustainability.

Trees will be planted at densities that vary by species and habitat objectives as described in the *Ojai Meadows Preserve Habitat Restoration and Flood Control Plan* that was completed in 2004 (OMP Restoration Plan). In the 20 acres designated for native grasslands and valley oak savannah as shown on Figure 12, planting density will be 10 valley oak savannah trees and 10 shrubs per acre. Areas between the trees will be sown with seeds for native grasses and wildflowers. Trees will be planted in clusters of three, on 10-foot centers, assuming one tree per cluster will survive to maturity. Companion shrubs will be planted alongside the trees at 4-foot centers, allowing them to grow together and shade out weeds.

In the 20 acres of live oak woodlands and live oak savannah, 9 acres will be planted with dense coast live oak woodland to establish approximately 75 trees per acre. The goal is 700 surviving coast live oaks and 945 companion plants in this area. In the 11 acres east of the eucalyptus grove, live oak savannah will be planted at a lower density, allowing for native grasslands between the trees. The goal for this area is 25 oak and associated trees per acre and 60 companion plants per acre.

The scattered coastal sage scrub species will be planted in higher density clusters, on 4-foot centers, covering an estimated total of 1 acre of the OMP.

The project will complement the prior phase of work, which improved natural channels in order to convey stormwater runoff from local streets and a school into a large restored wetland pond



for detention, groundwater recharge, and habitat creation. Native vegetation was planted along the channels and the pond to form riparian and wetland type habitats. The success of the wetlands project is indicated by the presence and significant diversity of wildlife observed at the site and absence of flooding in the region since the wetlands were created. This final phase of work will preserve and enhance the functions of both the wetlands and the associated stormwater management and erosion control features.

### **Goals and Objectives**

Goals for the final phase of the project are as follows:

- Complement the wetlands portion of the OMP with appropriate upland habitat to allow the OMP, as a whole, to be a self-sustaining ecosystem.
- Enhance and stabilize the upland habitat to reduce erosion into the wetlands, thus preserving the flood control and stormwater management benefits of the wetlands.
- Provide additional plantings in the wetlands channels, as needed to provide appropriate plant density, to enhance filtration and treatment to the stormwater entering the wetlands.

### **Purpose and Need**

The overall purpose of the OMP is to creatively manage stormwater through a multi-pronged approach that protects public infrastructure from flooding, improves the quality of stormwater entering the Ventura River, creates wildlife and wetland habitats, and provides recreational and educational opportunities. The project was originally initiated because frequent flooding on the adjacent section of State Highway 33 that serves as an important transportation route for the City of Ojai. The flooding resulted in road closures and prevented access to the region's flood emergency center at Nordhoff High School, next to the OMP. The project was also needed to address drainage problems at the high school.

Additionally, the wetlands provide stormwater quality treatment to protect the Ventura River

from water quality impacts associated with erosion, sedimentation, and stormwater pollution by metabolizing nutrients and other pollutants. Wetlands are well-known for their pollution buffering capacity and are believed to provide carbon sequestration and associated climate change benefits. The revegetation that will occur in the final phase will reduce erosion and sedimentation to the wetlands.

The final phase of work is needed to ensure that the wetlands are buffered by appropriate habitat, allowing the area to become naturally sustainable. The final phase also stabilizes the land by revegetating the uplands area with native plants providing habitat for many species. The OMP could provide suitable habitat for four special status plant species listed in the Department of Fish and Game Natural Diversity Data Base, including Miles's milk vetch, Davidson's Saltscale, Sanford's arrowhead, and Salt Spring Checkerbloom, all of which are found within a 5-mile radius of the project site. Naturally occurring seed transfer could result in these species taking root at the OMP.

Water is also held on the property in upland areas and pools that encourage infiltration into the groundwater. Because the Ojai Valley depends largely on a stressed aquifer for municipal and agricultural water supplies, groundwater recharge is critical.

This phase of the project will also enhance the recreational opportunities on the property, by providing habitat that increases the presence of birds and wildlife for viewing from existing trails. The vertical features of the coast live oak woodlands will provide shaded areas and make the preserve especially attractive during warm summer months. Educational signage will be updated to reflect the additional biological values associated with revegetated areas.

If the area surrounding the restored wetlands is not revegetated, the benefits of the previous work may be reduced and the overall ecological, wildlife, and stormwater quality benefits of the complete project will not be realized.

## Integrated Elements of Projects

The OMP and The Nature Conservancy's Natural Flood Plain Protection Program (NFPP) (SC-7) are both projects that integrate ecosystem management strategies to accomplish watershed management objectives such as flood control, without costly infrastructure. As noted in the IRWMP, many organizations are working on similar preservation and restoration projects, with limited continuity. A goal of the IRWMP, therefore, is to "...bring these groups together under integrated watershed management strategies to effectively maximize their respective missions. Their efforts can be coordinated with the interests of water suppliers for long-term sustainability of the resource (IRWMP, page 98).

The local project partners that have participated previously are expected to fully support the final phase of work as a means to preserve and enhance the accomplishments to date. The entities involved include the City of Ojai, California Department of Transportation, Nordhoff High School, Ventura County Watershed Protection District, and the Ojai Valley Sanitary District.

## Completed Work

As described earlier, the OMP Habitat Restoration Plan was prepared by Condor Environmental Planning Services, Inc. in 2004 and can be found as Exhibit 3-4 to this attachment (Att3\_IG1\_WorkPlan\_5of5.pdf on BMS). This document established the framework for all the restoration actions on the site, and was the basis for acquisition of necessary permits.

A Final Initial Study/Mitigated Negative Declaration (IS/MND) was prepared to comply with the California Environmental Quality Act (CEQA) (Rincon Consultants, Inc. 2007).

All earthwork on the site has been completed and included creating drainage channels for Highway 33 and the Taormina neighborhood, a seasonal wetland marsh, a perennial wetland pool at the confluence of all three water sources, two vernal pools, and a series of holding ponds on the upland portions of the site. A sewer line has also been relocated.

After grading, the Taormina drain was planted with native riparian vegetation. This vegetation is now established and meets the performance standards in the restoration plan. Additionally, approximately 3 acres of seasonal marsh savannah was planted. Planting is currently underway along the Maricopa Drain, including the channel draining Highway 33 and the channel that conveys water from the wetland pool to the Happy Valley Drain. Planting will continue as mature plants become available and until appropriate plant density is achieved.

## Existing Data and Studies

As noted earlier, a comprehensive study of the project area was previously prepared:

- *Ojai Meadows Preserve Habitat Restoration and Flood Control Plan*. June 2004. Condor Environmental Planning Services, Inc. can be found as Exhibit 3-4 to this attachment (Att3\_IG1\_WorkPlan\_5of5.pdf on BMS).

This study is the basis for past, current, and future phases of the OMP. It contains the results of numerous site visits and studies on topography, geology, soils analysis, climate, flooding, hydrology, biological setting (historic and current), land uses, wildlife use, water quality, and infrastructure. The detail exhibited in the plan has provided a well-defined set of restoration principles to follow in implementing the OMP.

## Project Map

A map of the project area is provided on Figure 12.

## Project Timing and Phasing

Project work is tentatively scheduled to begin in June 2011. As noted above, this is the final phase of work, and implementation is not contingent on other current or future phases, with the exception of limited additional channel plantings to finish areas that are currently being planted.

The previous phase included:

- Project Plan
- Project Permits
- Project site grading



- Planting marsh savannah
- Planting Taormina channel
- Planting Maricopa channel.

The final phase includes:

- Removal of non-native invasive species by mowing and hand weeding.
- Planting native grasslands and oak savannahs for erosion control and habitat improvement in accordance with the OMP Restoration Plan.

- Additional plantings to achieve appropriate plant density in existing wetlands channels, which will enhance filtration and treatment of the stormwater entering the wetlands.

The full benefits of the OMP will be realized with completion of this final phase.

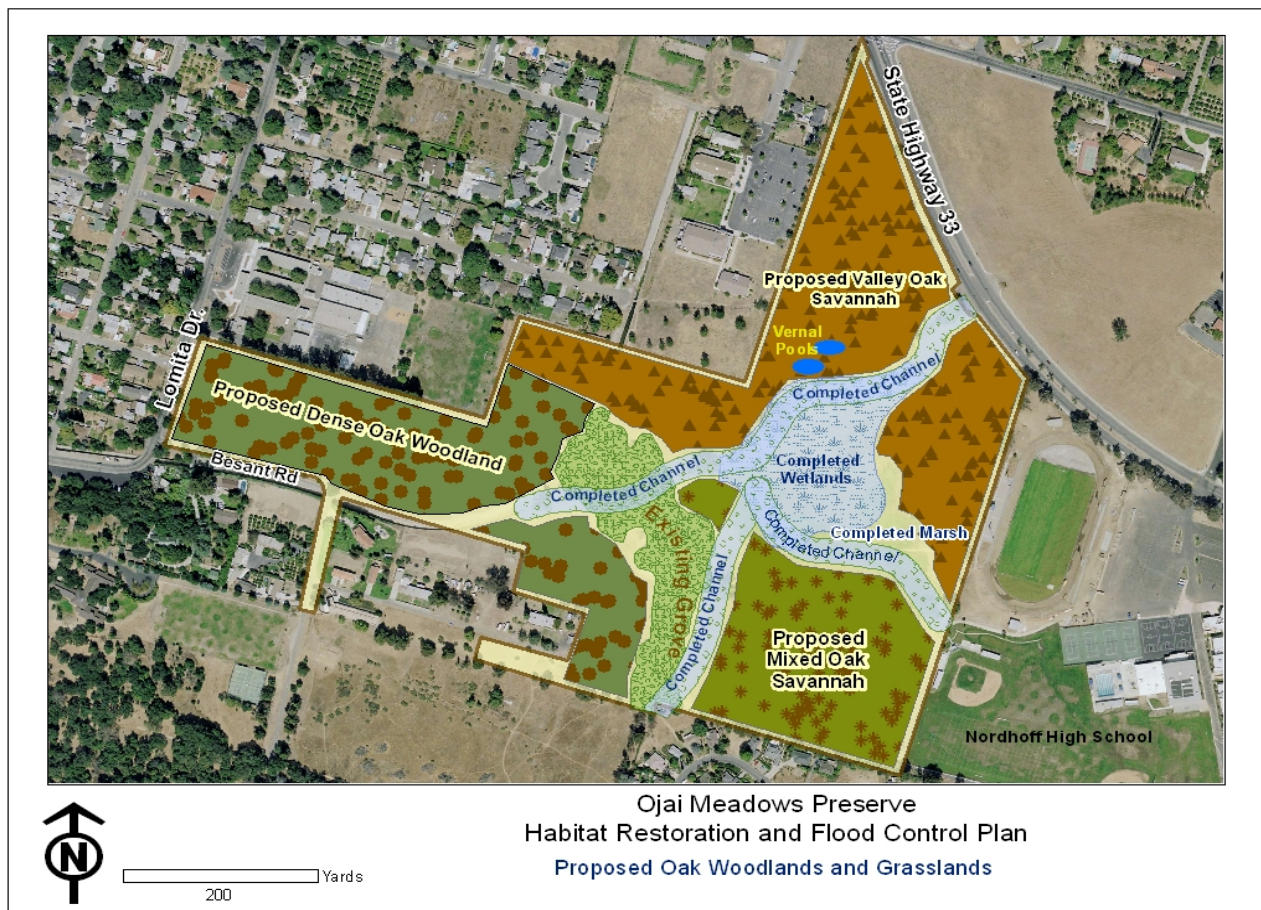


Figure 12: OMP Site Map

## II. Work Plan

Tasks necessary to implement the Ojai Meadows Ecosystem Restoration are described in Table 9.

Table 9: Work Plan for OVLC Ojai Meadows Ecosystem Restoration

<b>Budget Category (a): Direct Project Administration Costs</b>
Task 1: Administration Description: Prepare and submit invoices. Deliverables: Invoices.
Task 2: Labor Compliance Program Description: Perform labor compliance in accordance with the requirements of California Labor Code §1771.5(b). Deliverables: Execution of labor compliance program; documentation furnished to DWR as requested.
Task 3: Reporting Description: Prepare quarterly and final reports as specified in the Grant Agreement. Deliverables: Quarterly and final reports as specified in the Grant Agreement.
<b>Budget Category (b): Land Purchase/Easement</b>
Task 4: Land Purchase/Easement Description: The land where the project will be undertaken is already owned by the OVLC. No additional land or easements are necessary or planned. Deliverables: N/A
<b>Budget Category (c): Planning/Design/Engineering/Environmental Documentation</b>
Task 5: Planning Description: All planning activities have been completed. Deliverables: OMP Restoration Plan.
Task 6: Design/Engineering Description: All design activities have been completed and are found within the OMP Restoration Plan. Deliverables: OMP Restoration Plan.

#### Task 7: Environmental Documentation

Description: A MND was previously completed to satisfy the requirements of CEQA. A supplemental memorandum assessing greenhouse gas (GHG) emissions resulting from construction of the project and GHG uptake attributable to project operation, in accordance with AB 32 and SB 97, will be prepared and submitted with the quarterly reporting.

Deliverables: Completed MND and GHG Memorandum.

#### Task 8: Permitting

Description: All necessary permits have been obtained, including:

- City of Ojai: Grading permit
- City of Ojai: tree permit
- Ventura County: Grading permit
- Ventura County: Tree permit
- Ventura County Watershed Protection District: Encroachment Permit
- US Army Corps of Engineers: Nationwide Permit 27
- California Department of Fish and Game (CDFG): Streambank Alteration Agreement
- California Regional Water Quality Control Board (RWQCB): Section 401 Water Quality Certification
- State Water Resources Control Board (SWRCB): Coverage under General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

Deliverables: Copies of permits.

#### **Budget Category (d): Construction/Implementation**

#### Task 9: Construction Contracting

Description: A Request for Proposals (RFP) for mowing contractors will be prepared and advertised. Prospective bidders will be asked to list their qualifications and hourly rates for using both a rotary and a flail mower. Contractor selection will be based on a proposed hourly cost for mowing and the type of equipment proposed for use. A contract agreement will be prepared for the selected contractor. It should be noted that some work will be completed by OVLC staff, OVLC volunteers, and/or California Conservation Corps (CCC) staff, as has occurred on other OVLC projects as described further in Section III.

Deliverables: Notice of Award issued to contractors, agreements with CCC.

#### Task 10: Construction

Description: First year activities will entail several rounds of manual and mechanical weed management. The site will initially be mowed close to the ground in the late summer using a flail mower. Throughout the following winter, weed sprouts will be removed by hand by OVLC staff, OVLC volunteers, and/or CCC staff and by repeated mowing to substantially exhaust the seed bank. Native grass and wildflower seeds will be broadcast on areas where weed management is successful.

Additional first year activities will include removing a number of non-native trees (e.g., eucalyptus, lotus, and pepper trees) to provide opportunities for native plants; further plantings in the existing wetlands channels, as needed to meet plant density performance standards for stormwater management; and weed management on sections of the wetland channels that will have been planted in winter 2010 and spring 2011. Plantings will be performed by OVLC staff, OVLC volunteers, and/or CCC staff.

In the second fall, larger-scale seeding will be undertaken throughout the project site and potted plant stock will be installed. Most plants will be grown by a commercial nursery, while some will be grown at an existing nursery on the restoration site. Wood chip mulch will be applied in areas where potted stock is installed to retain soil moisture and suppress weed/grass growth. Periodic mowing by the mowing contractor will begin in the seeded areas and continue on the site through the first 3 years. Plants will be irrigated using an existing, expanded portable, modular irrigation system until the site receives 3 inches of rain. If prolonged dry periods follow, plants may be irrigated to ensure survival. Irrigation needs will decline as plants become established. Throughout the project, 2,000 pounds of native seed mixes will be applied on the site and 10,000 plants will be planted by OVLC staff, OVLC volunteers, and/or CCC staff.

Deliverables: Construction Photos.

#### **Budget Category (e): Environmental Compliance/Mitigation/Enhancement**

#### Task 11: Assessment and Evaluation

Description: Prepare a Monitoring Plan based on Attachment 6, the Project Performance Measures table. The Monitoring Plan will leverage site monitoring protocols presented in the OMP Restoration Plan, including field data collection and analysis to assess the extent of native and non-native plant cover and biodiversity. Following installation of each planted area, baseline monitoring data will be collected by OVLC staff and/or OVLC volunteers and used as a basis for subsequent monitoring of project success. Monitoring will be both quantitative and qualitative, and will address areas planted with oak woodlands and grasslands, as well as the planted drain channels. Reporting will be addressed in Task 3.

Deliverables: Monitoring Plan.

#### **Budget Category (f): Construction Administration**

#### Task 12: Construction Administration

Description: Contract administration will include orienting staff and contractors to the specific work they are undertaking, field inspections of all work by the project manager, reviewing contractor invoices, and ensuring proper payment for contracted tasks.

Deliverables: Same as for Task 10, Construction.

### III. Other Required Information

#### Procedures

While much of the work on the project will be performed by staff of the OVLC and volunteers, OVLC will also partner with contractors and the CCC.

For contractors working on mechanical weed management and non-native tree removal, OVLC will work under a standard contracting agreement. The contractors will receive detailed descriptions of the work to be done and the project manager from the OVLC will inspect all work and approve all invoices. Contracts will include cost description and a not-to-exceed amount to control project budgets. Timing of the contracted mowing work will be determined by the project manager.

The OVLC commonly works with the CCC in implementing restoration projects. OVLC and CCC work together under a formal sponsorship contract that describes the projects to be undertaken and the estimated cost. Project costs are tracked by the OVLC and payments are made following the approval of an invoice from the CCC.

#### Standards

The approaches used for this restoration work are all common to the restoration field in general and have been specifically adapted to the project site. Plant installation will consist primarily of 1-gallon sized plants with some larger 5-gallon size plants and a few 15-gallon size plants. Acorns will also be used for the oak species. Using various sizes of plants creates a more natural looking landscape, while larger plants provide instant vertical structure. The trees will be planted in densities described in the OMP Restoration Plan for the various habitat types being planted.

In all cases, planting will consist of digging a hole that is only slightly larger in diameter than the planting container. This is done so the roots are able to move into the native soil right away and are less dependent on water held in the root ball. Holes will be saturated with water prior to plant installation. Plants will be installed so the top of the root ball is approximately flush

with the surrounding soil. Setting it slightly higher for oak trees can help reduce water accumulation on the root crown and prevent stem rot. These are standard industry procedures.

The number, species, and layout of the plants for the project are based on target densities established in the OMP Restoration Plan. To create differing types of oak woodlands, the planting layouts will be varied.

#### Development of Monitoring Plan

The Monitoring Plan will be developed in accordance with the OMP Restoration Plan. The Plan defined monitoring methods that will be used to assess the relative success of weed management activities and establishment of native vegetation, as described starting on page 198. Biodiversity will also be measured as an indication of project vigor. Project monitoring is scheduled for the spring of each year.

The work area will first be divided into monitoring regions delineated to represent the specific habitat types to be planted in each area. This ensures that all monitoring data is comparable to the performance standards set for each habitat type. Within each region, representative transects will be sampled to represent the whole area. The number of transects will be chosen to allow for 80 percent confidence intervals for the statistical analysis. Each transect measured will be chosen randomly each year within a defined range so the monitoring study will consider the entire region rather than established permanent transects.

Along each random transect, a 1-square-meter quadrat (e.g., a metal or plastic frame used to define an area for ecological evaluation) will be placed at standard intervals. A visual estimate of the percentage of cover will be made for each plant species observed within the quadrat. The sample data will be analyzed to show the percentage of native and non-native cover, and the average number of different native species within a transect will be used as an indicator of biodiversity.

Photographic monitoring will also be undertaken for the project. Prior to implementation, permanent photo point locations will be

established. Photos will be taken from these points each year during the monitoring period. Photographs are expected to show established native plants and ground cover. They will also show vertical structure as the site matures.

Qualitative observations will round out the monitoring methods. The site monitor will describe evidence of natural processes occurring on the site, such as newly encountered native plants and bird species. Observations will also be made regarding threats to the project sites, such as gophers, ground squirrels and invasive weeds. These observations are helpful in determining the cause of any plant mortality so remedial actions can be taken to prevent future damage. All site monitoring activity is intended to evaluate whether the site is meeting expected performance criteria. Performance criteria include:

- Invasive plant species (weeds): less than 10 percent of land cover. Weeds should not threaten continued recovery.
- Native plants: more than 75 percent of site vegetation coverage.

Site monitoring data should show a trend toward expansion of native plants and reduction in invasive weeds. If the trend is not indicative of recovery, remedial actions, such as installing additional plants or implementing a more substantial weed management program, will be undertaken. The site is expected to reach the performance criteria in 5 years.

### **Status of Acquisition of Land or Right-of-Way**

The land where the project will be undertaken is already owned by the OVLC. No additional land or easements are necessary or planned.

### **Building Materials, Project Design Status, and Bid Solicitation Efforts**

The OMP Restoration Plan is complete and it specifies plant species to be planted as part of the revegetation effort. These species were chosen because they are native to the Ojai Valley and the OMP can meet their habitat requirements. The selected plants also commonly grow together in natural plant

communities. By planting common companion plants, OVLC is establishing plant communities that are naturally sustainable over time.

When planting native plants, securing stock from the same region of the project is preferred. In some cases, cuttings and seeds are collected from the restoration site itself or nearby habitat areas. Use of local genetic strains helps ensure that the plants are well-suited to any site-specific habitat parameters. For this project, most of the potted stock will come from cuttings and seeds local to the Ojai Valley.

Other plants will come generally from Ventura County. As ecologists are considering the implications of climate change on restoration projects, it is becoming more common to expand the range of source material to potentially provide more resilience. For example, inclusion of materials from habitat areas where the climate was slightly different introduces genetic variability that may enable the habitat to adapt to changes, enhancing sustainability.

Native grasses and wildflower material will come generally from the local area. The volume of seeds necessary for the project requires some flexibility on source. A local seed company in Santa Barbara County fortunately has many of the seeds needed and many of these are from the central coast area and should be well-adapted for the site. In some cases, seeds will be collected locally by OVLC volunteers. In fact, stockpiling of seeds is already underway by volunteers operating the OVLC nursery located on the project site. Seeds are a cost-effective way to cover bare ground. While individual germination rates may be lower, the cost is competitive for seeds when sown at recommended volumes.

Potted plant stock will primarily consist of 1-gallon sized plants. This is a good size to use because it generally achieves the best survival rates in comparison to the unit cost. Larger plants are more expensive and are more difficult to install, yet may have better survival rates. The difficulty in planting and cost, however, make them less practical for a project of this scale. However, some larger plants will



be included to provide vertical structure in a timely manner.

As stated previously, OVLC currently has a native plant nursery on the project site that is run by volunteers. Many of the native plants for this project will be grown onsite using locally collected material. The plants will be part of the match shown in the project budget.

### **Permits**

As described in Task 8, all required permits have been obtained, including:

- City of Ojai: Grading permit
- City of Ojai: Tree permit
- Ventura County: Grading permit
- Ventura County: Tree permit
- Ventura County Watershed Protection District: Encroachment Permit
- US Army Corps of Engineers: Nationwide Permit 27
- CDFG: Streambank Alteration Agreement
- RWQCB: Section 401 Water Quality Certification
- SWRCB: Coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

### **Status of Preparation and Completion of Environmental Requirements**

CEQA documentation has been completed for the project in the form of a MND. The City of Ojai served as the lead agency. A supplemental memorandum regarding GHG will be prepared.

### **Work Items to Complete GWMP**

The Ojai Basin Groundwater Management Agency has prepared a GWMP and updated it in draft in 2007 and can be found as Exhibit 1-3 to Attachment 1 (Att1\_IG1\_Eligible\_4of5.pdf on BMS).

### **Design Plans and Specifications**

The OMP Restoration Plan has been completed and guides all aspects of the project, including plant/seed selection, planting layouts and other implementation specifications, as described on pages 141-182 of the OMP Restoration Plan which can be found as Exhibit 3-4 to this attachment (Att3\_IG1\_WorkPlan\_5of5.pdf on BMS).